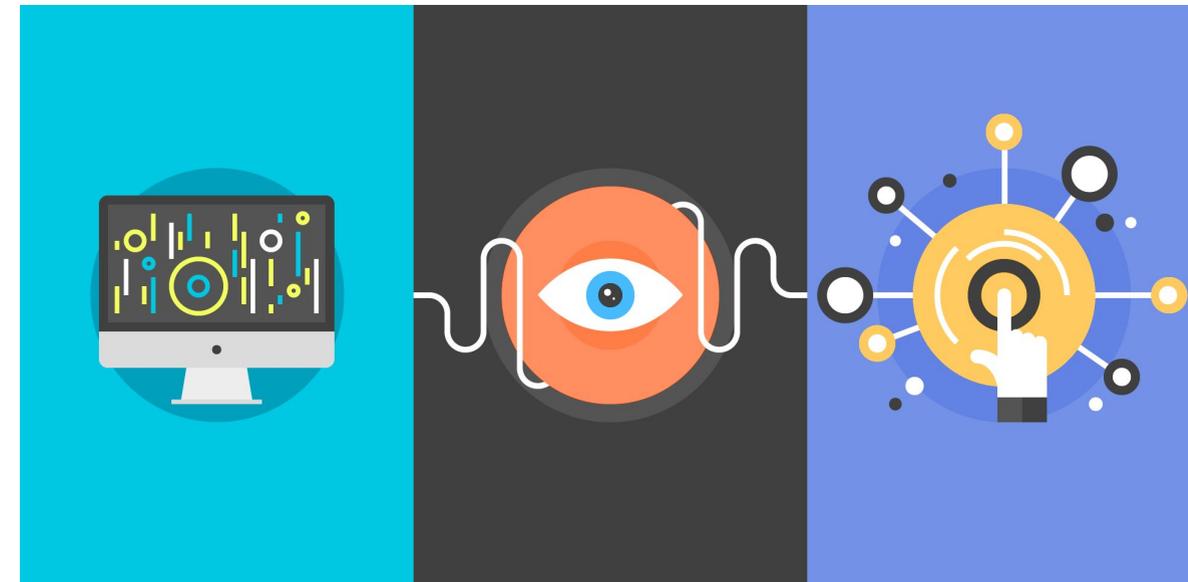
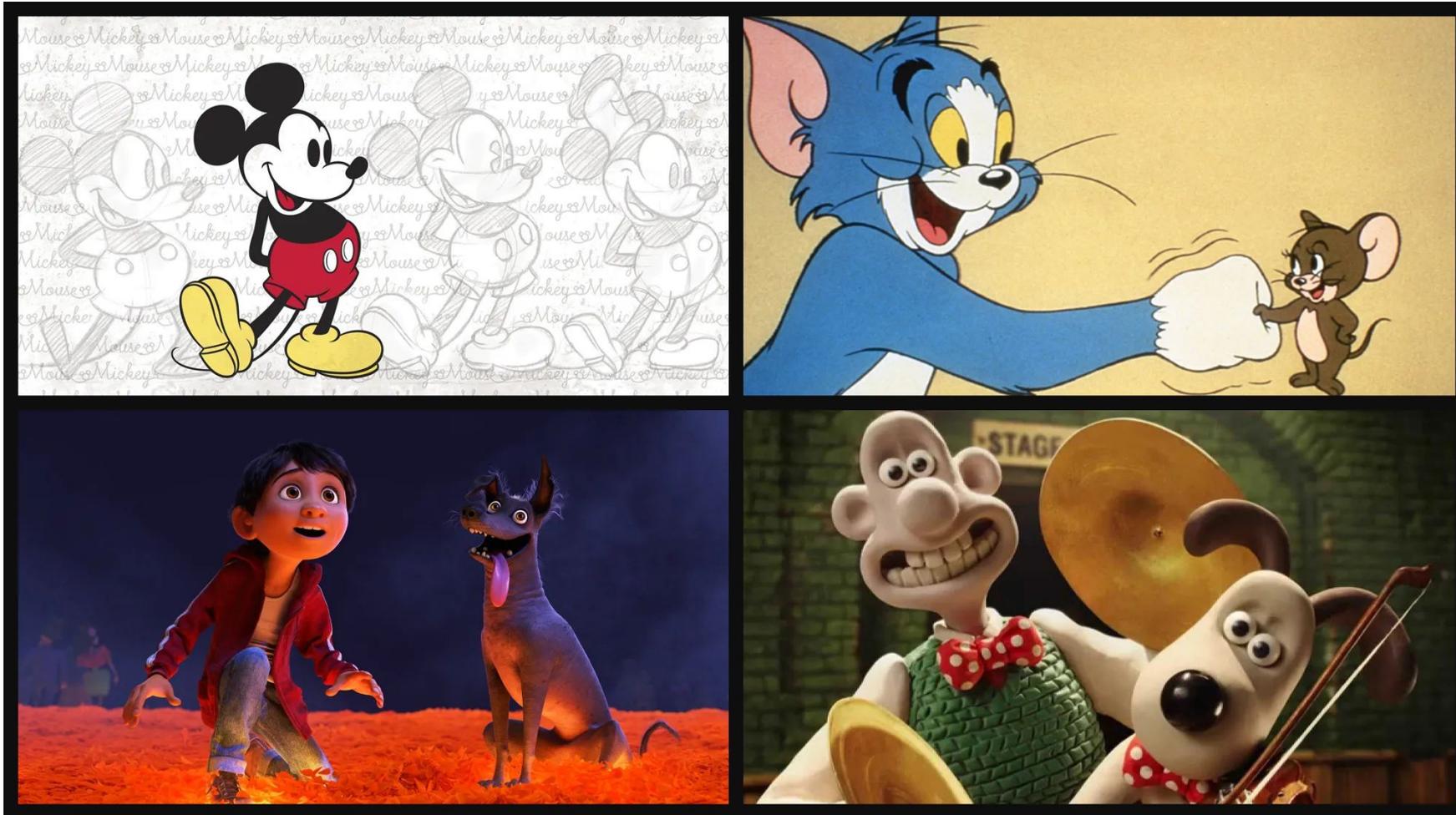
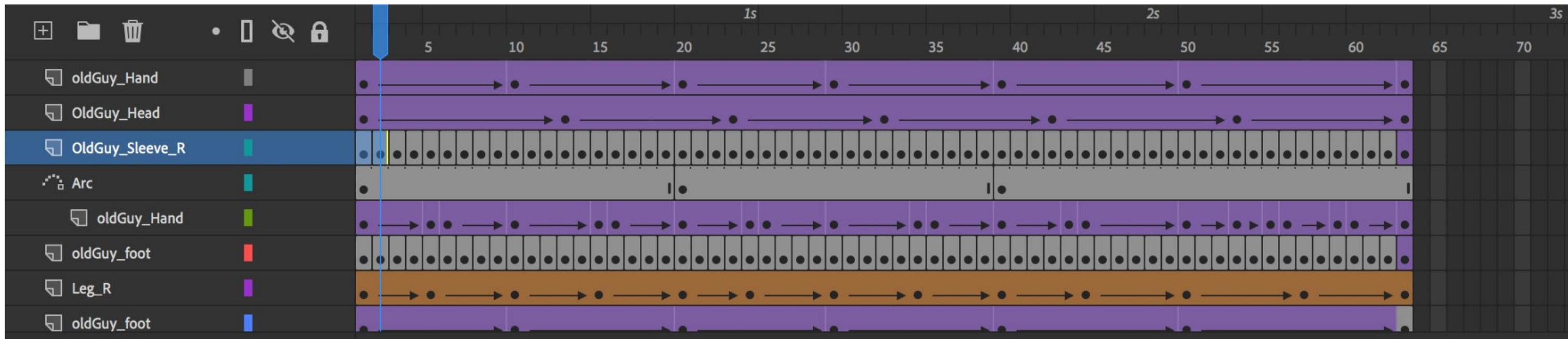


# O que é animação?

---



# Conceitos Gerais de Animação (CGA) - Linha do tempo



# CGA - Quadros por segundo

12 FPS



60 FPS



24 FPS



# CGA - Quadros por segundo

---



# CGA - 1s, 2s e 3s

---

24 FRAMES	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1s	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2s	●		●		●		●		●		●		●		●		●		●		●		●
3s	●			●			●			●			●			●			●			●	

# CGA - 1s, 2s e 3s

---

It is all the same frame rate , 24 FPS  
but the number of drawings per second  
makes a big difference in the look of the animation



**Animation 'ON ONES'**  
**(24 drawings per second)**  
**running at 24 FPS**



R1

# CGA - 1s, 2s e 3s

---

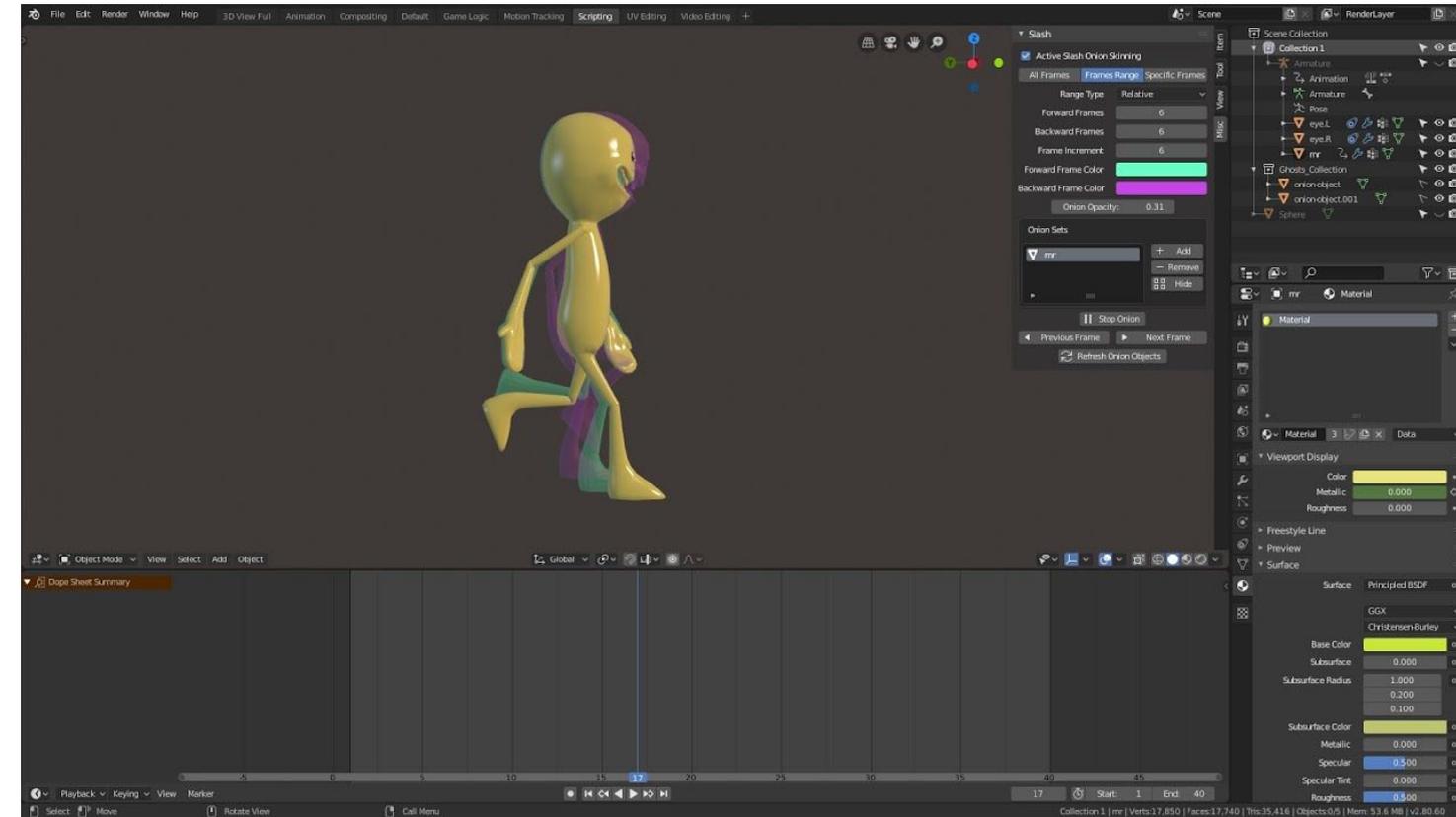


# CGA - Menos frames ainda?

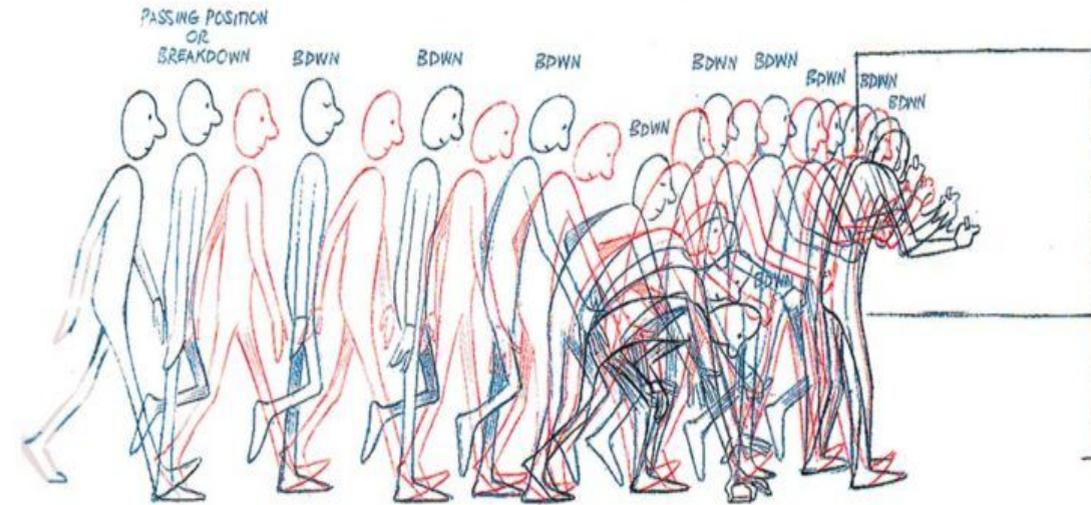
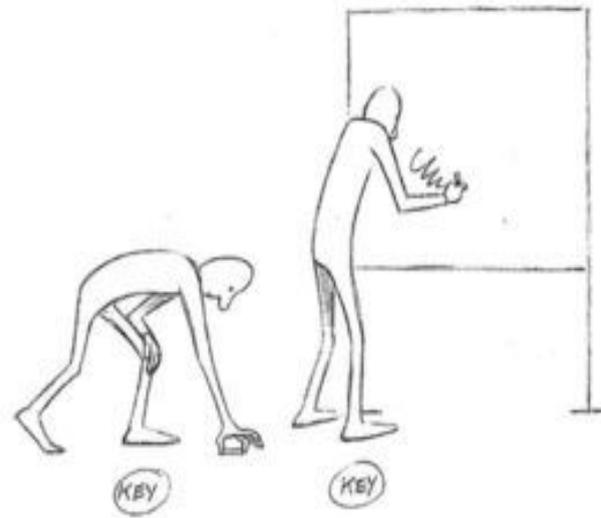
---



# CGA - Onion Skinning (Camadas)

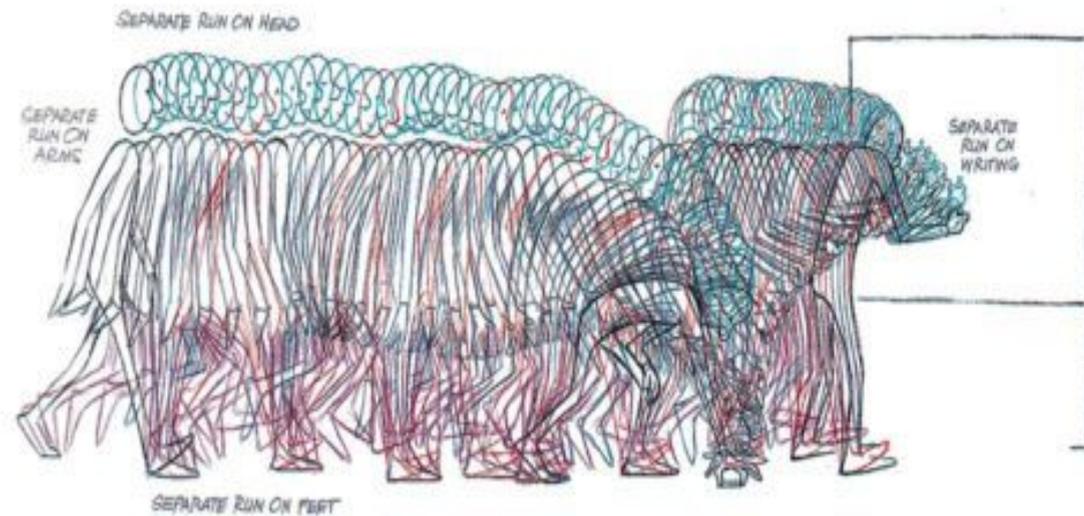


# CGA - Terminologia - Keyframes/Breakdowns/Inbetweens



Keyframes

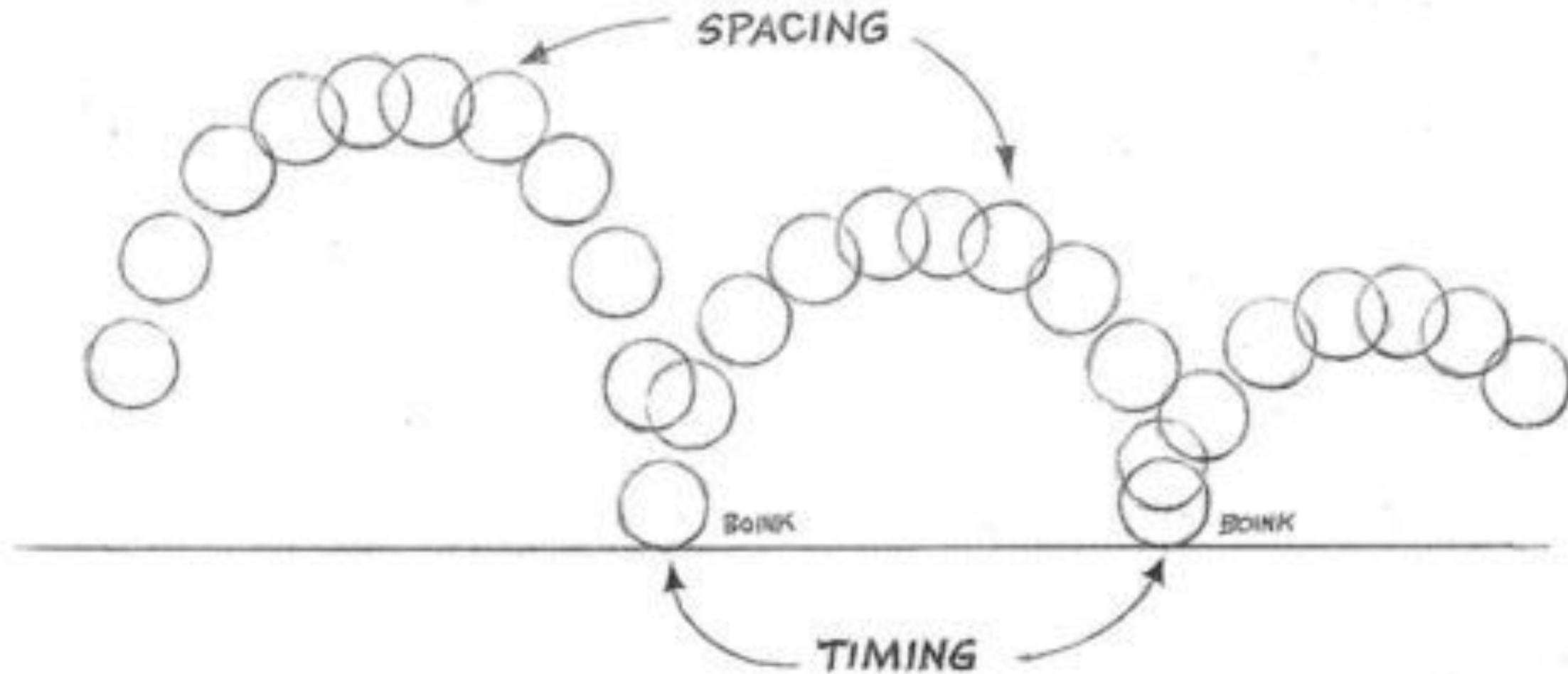
Breakdowns/Secundários



Inbetweens

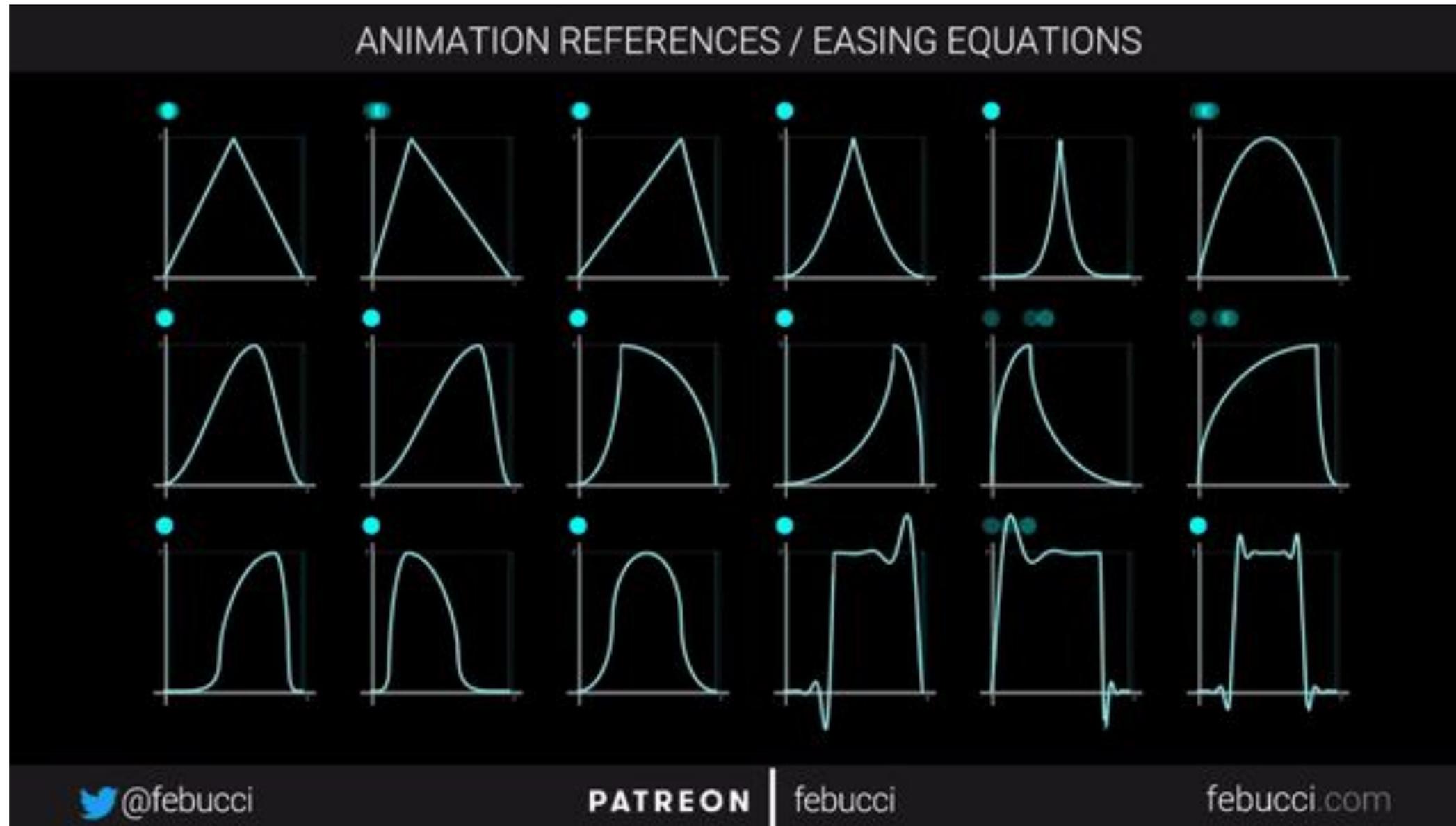
# CGA - Terminologia - Spacing e Timing

---



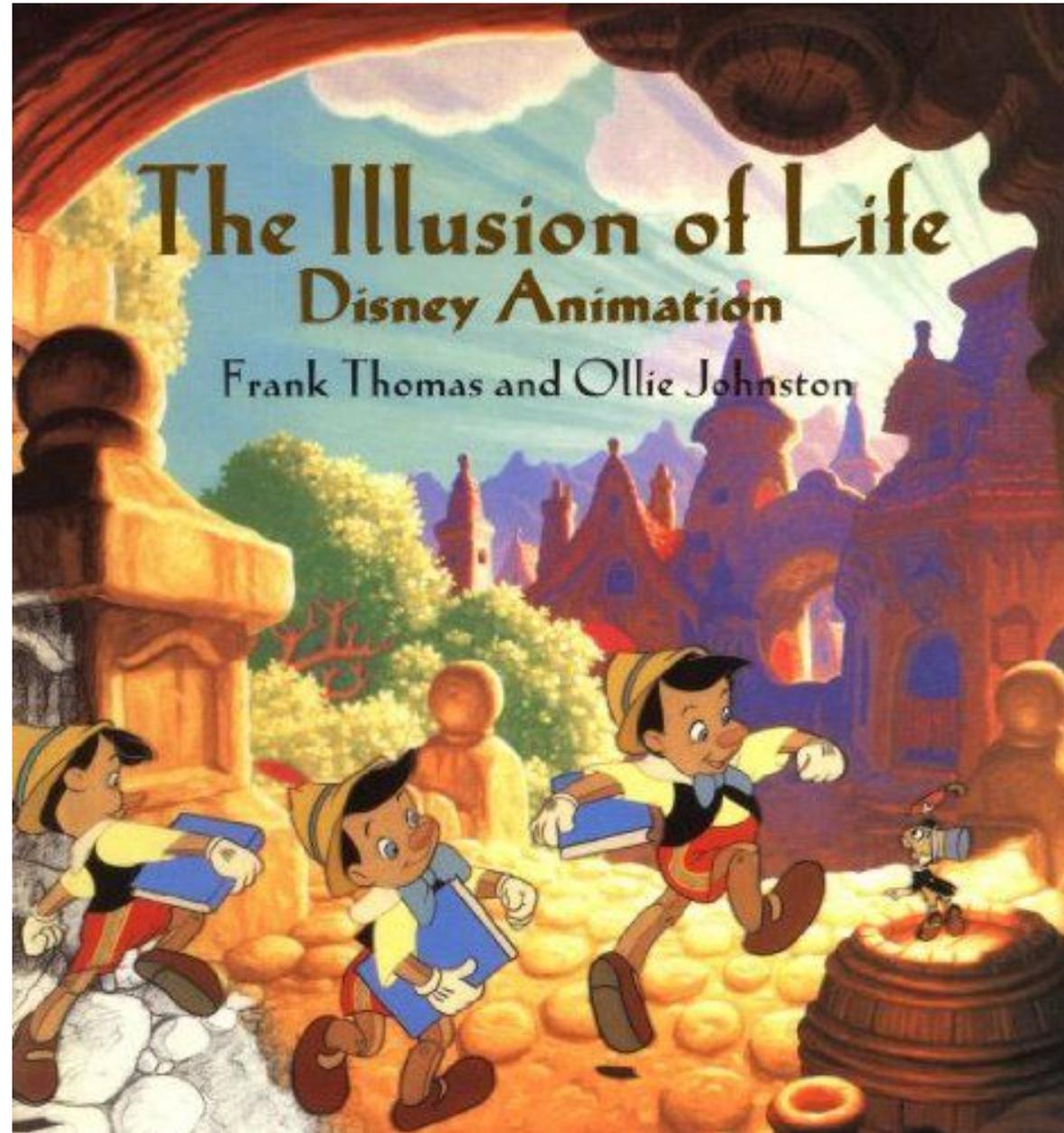
# CGA - Terminologia - Easing

---



# CGA - Os 12 princípios da animação

---



# CGA - Os 12 princípios da animação

---

#1  
SQUASH & STRETCH

#2  
ANTICIPATION

#3  
STAGING

#4  
STRAIGHT AHEAD & POSE TO POSE

# CGA - Os 12 princípios da animação

---

#5  
FOLLOW THROUGH & OVERLAPPING

#7  
ARCS

#6  
SLOW IN & SLOW OUT

#8  
SECONDARY ACTION

# CGA - Os 12 princípios da animação

---

#9  
TIMING

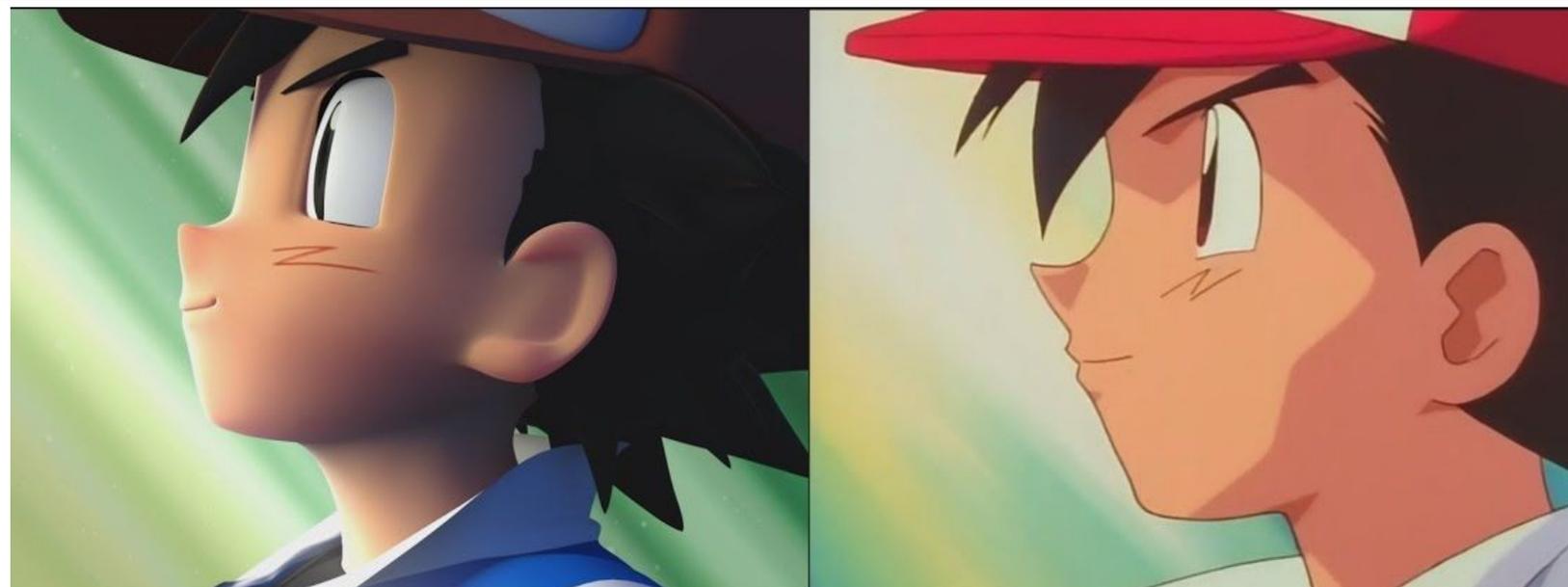
#11  
SOLID DRAWINGS

#10  
EXAGGERATION

#12  
APPEAL

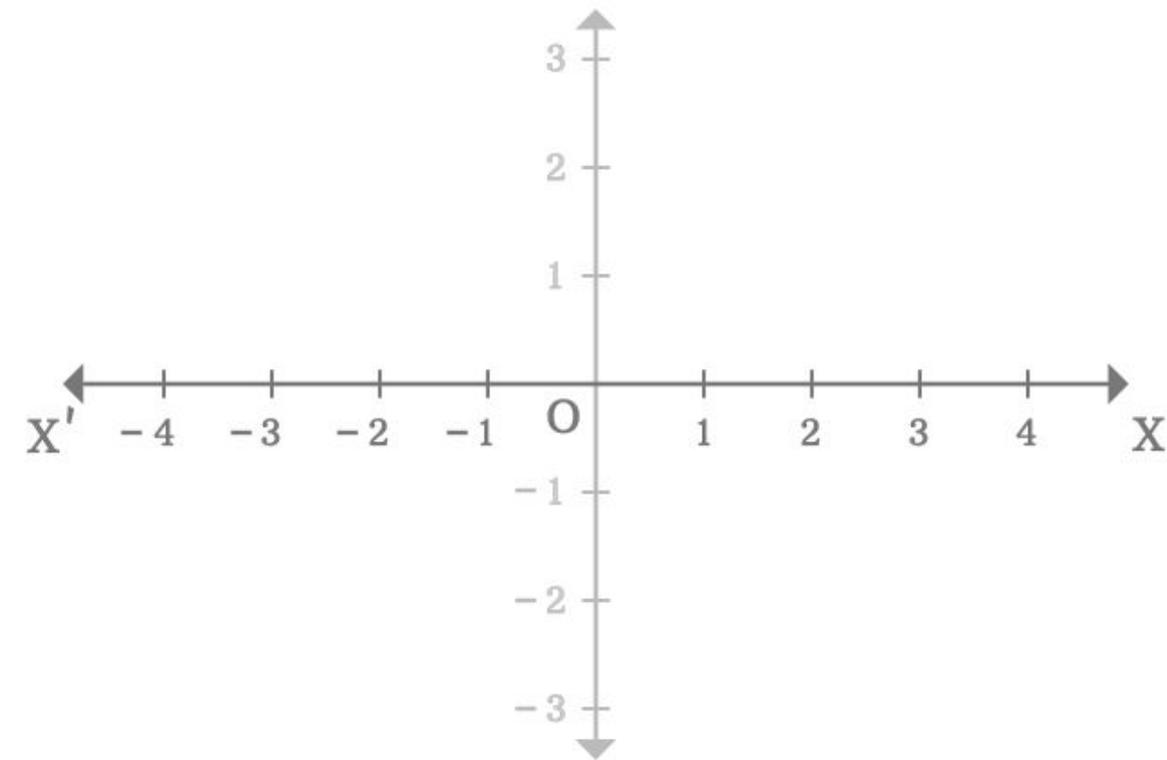
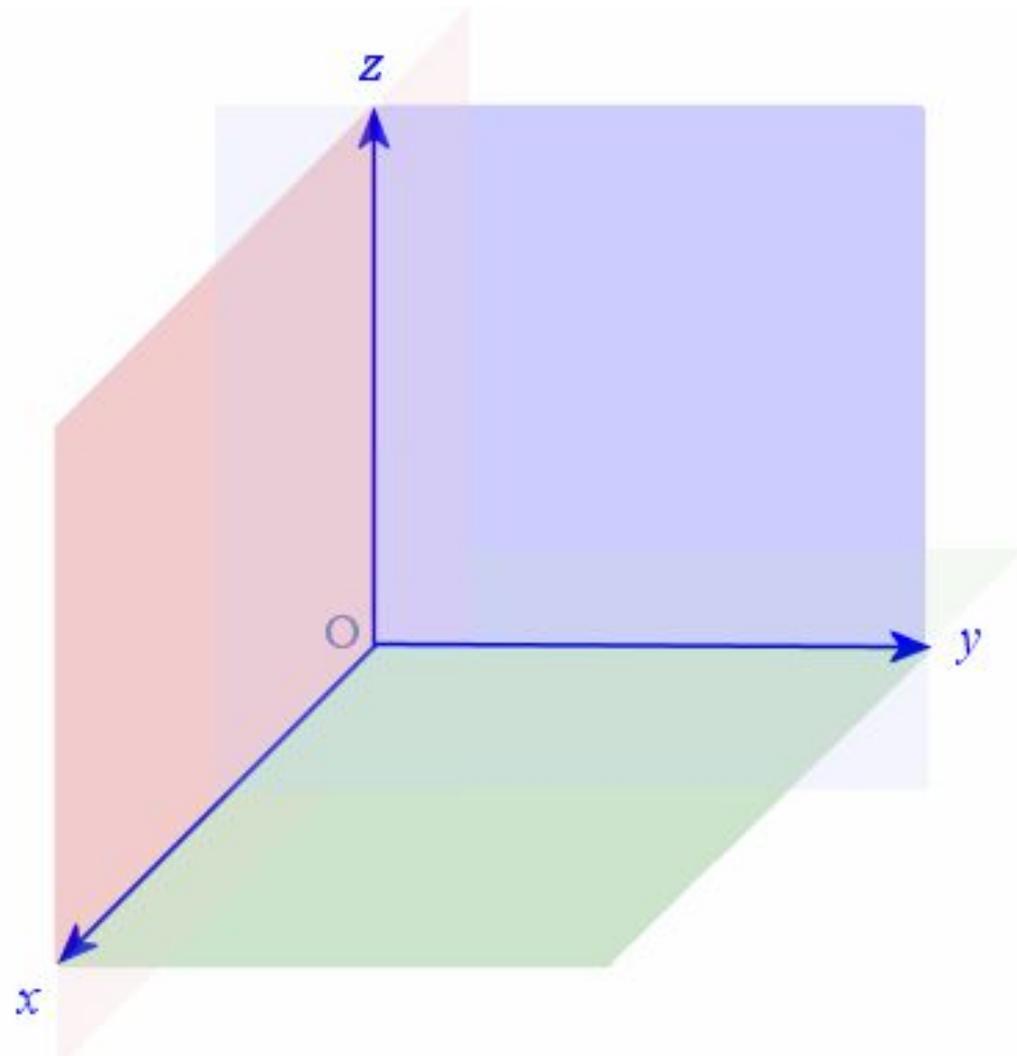
# 2D x 3D

---



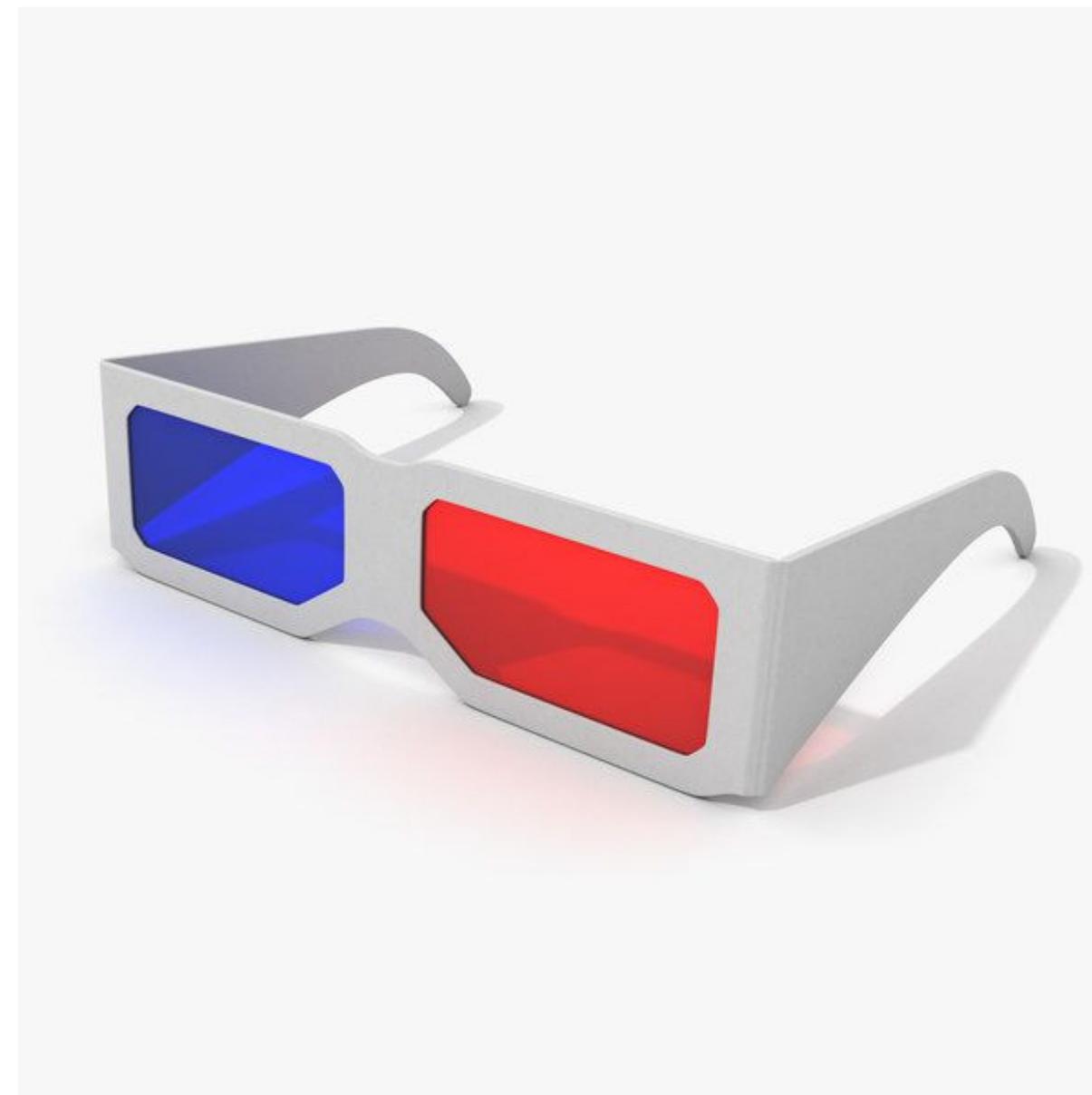
# 2D x 3D - Uma visão superficial

---

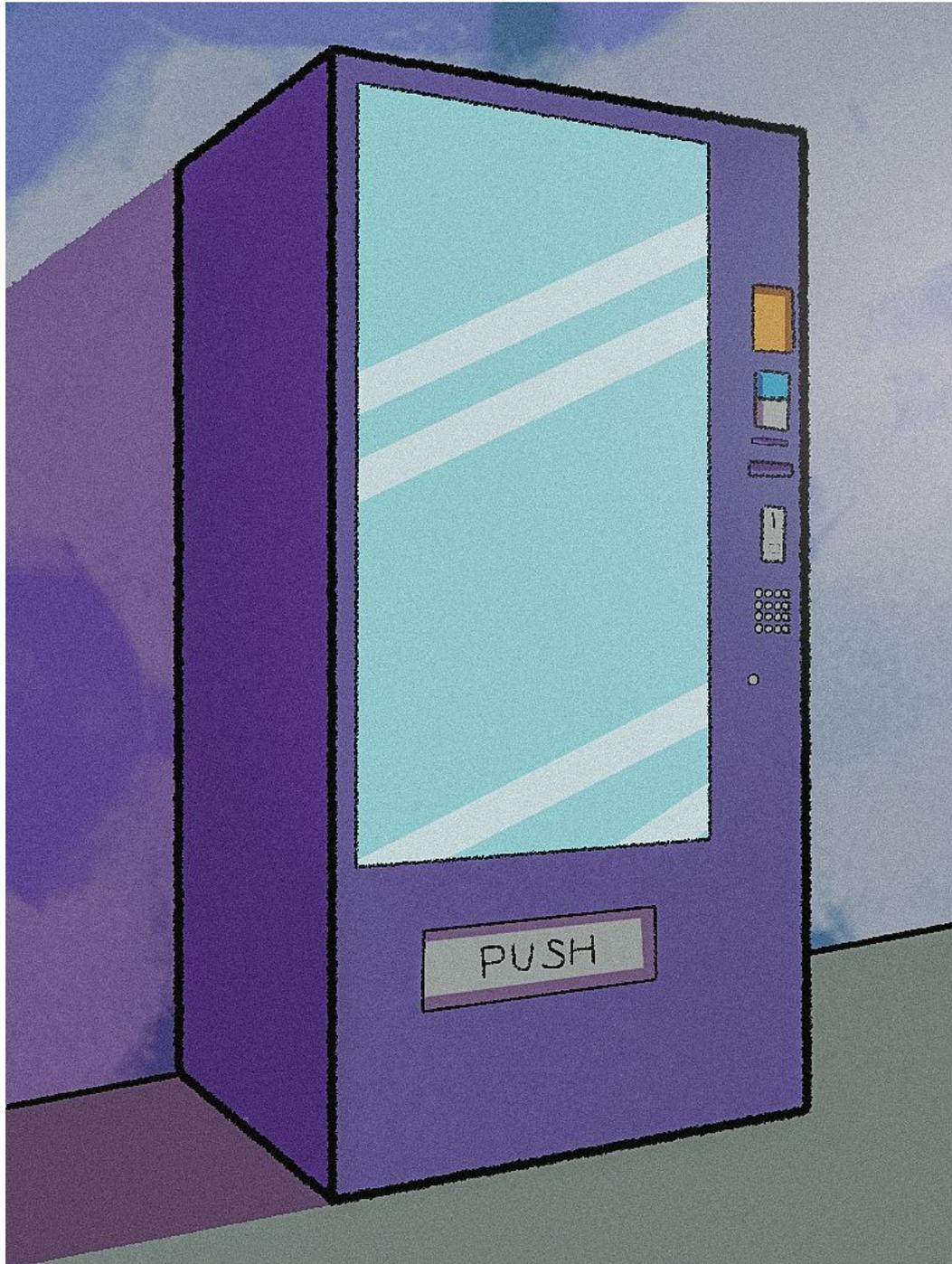


# 2D x 3D - Uma visão superficial

---

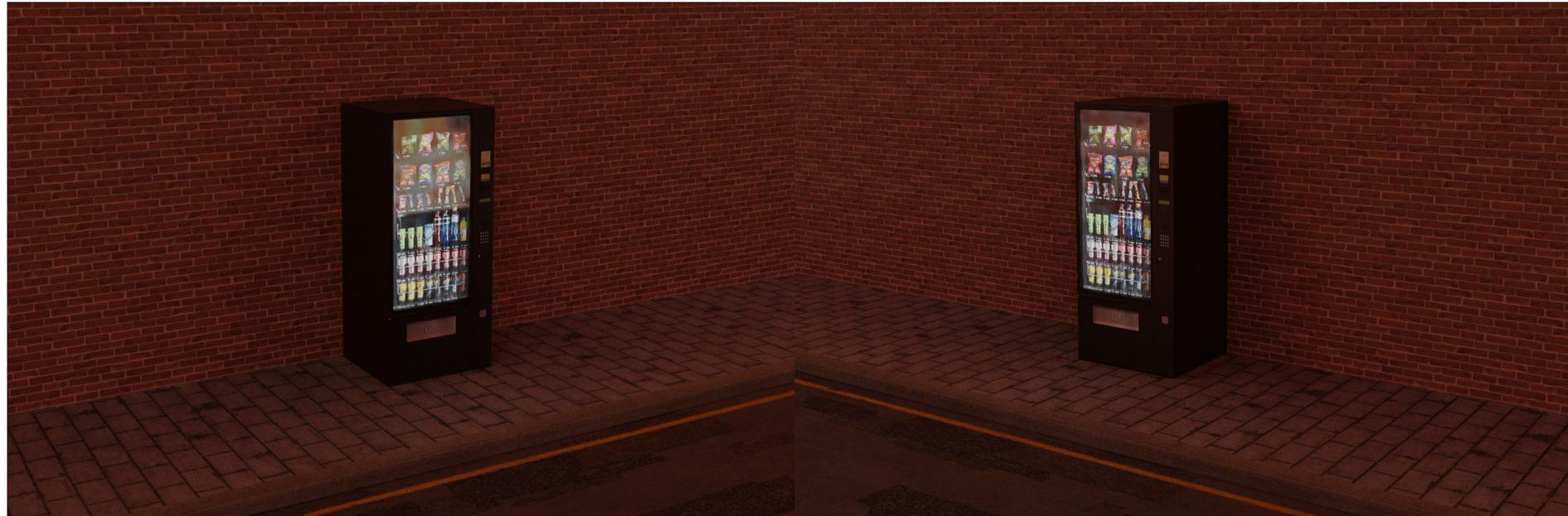


# 2D x 3D - Uma visão prática



# 2D x 3D - Uma visão prática

---

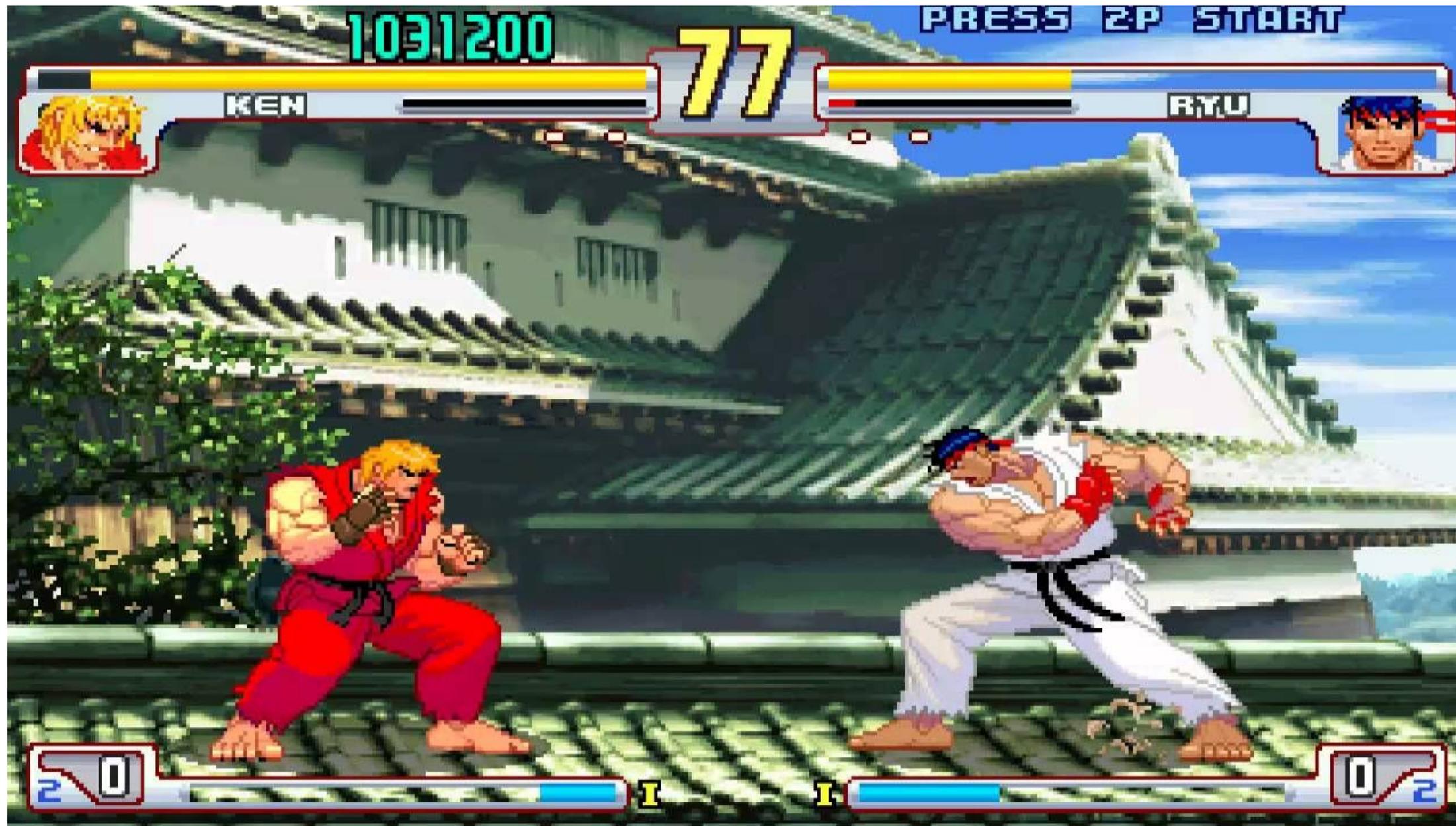


# 2D x 3D - Uma visão prática

---



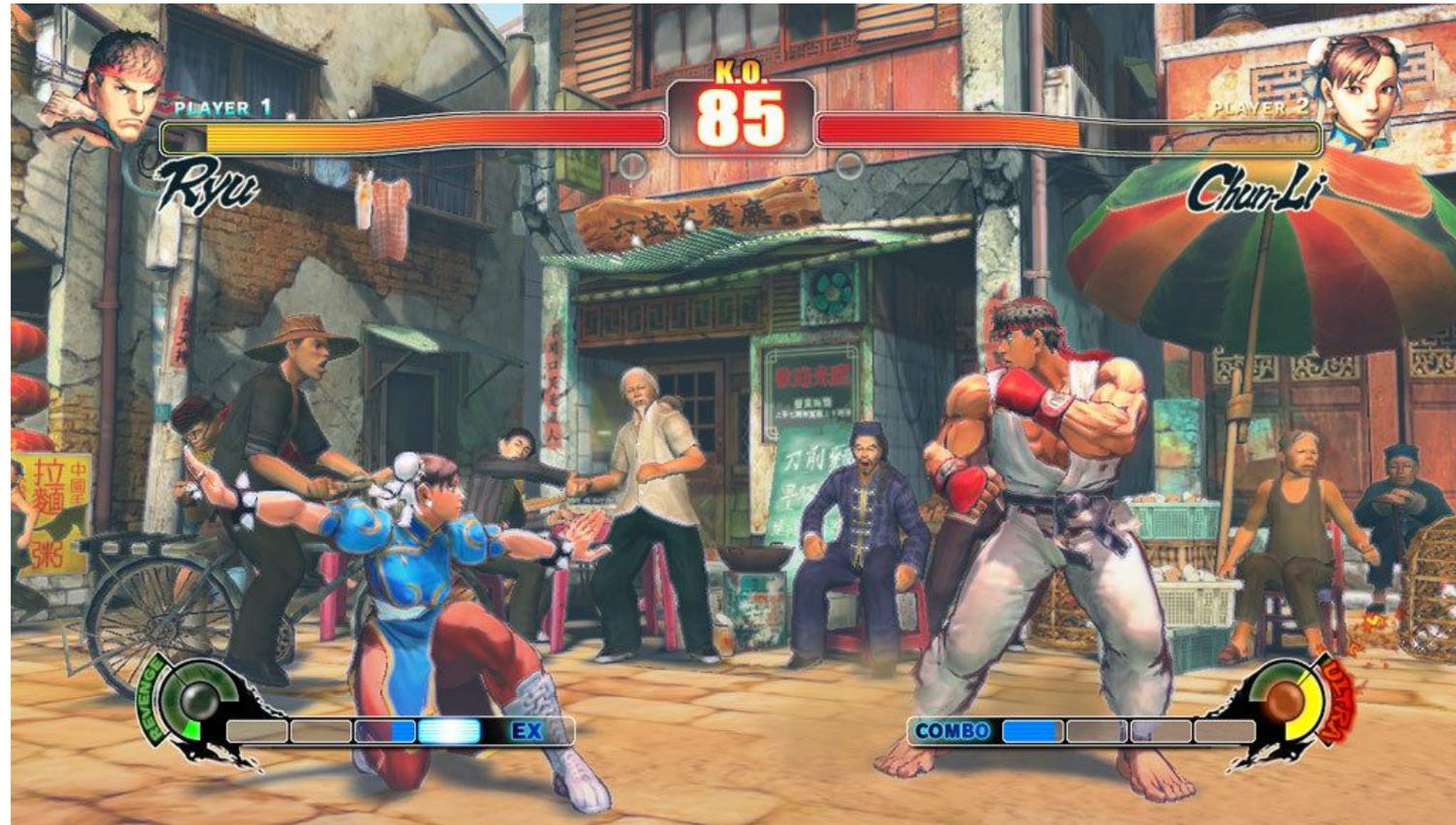
# 2D x 3D - Uma visão funcional



# 2D x 3D - Uma visão funcional



# 2D x 3D - Uma visão funcional



2D



3D

# 2D x 3D - Uma visão funcional



**2D**

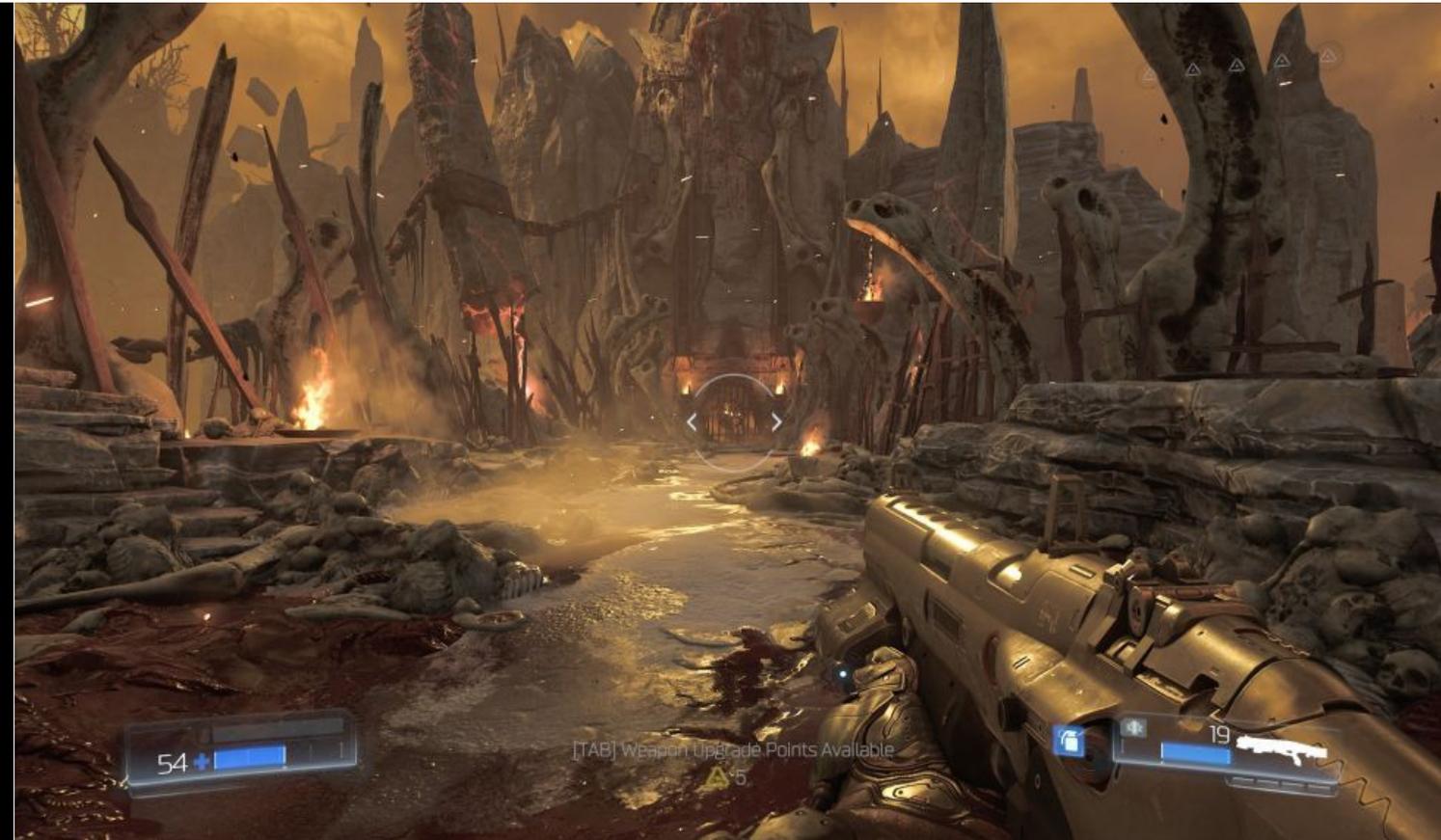


**3D**

# 2D x 3D - Uma visão funcional



3D



3D

# 2D x 3D - Uma visão criativa

---



# 2D x 3D - Uma visão criativa

---



# 2D x 3D - Uma visão criativa

---



# 2D x 3D - Qual a visão?



# 2D x 3D - Qual a visão?



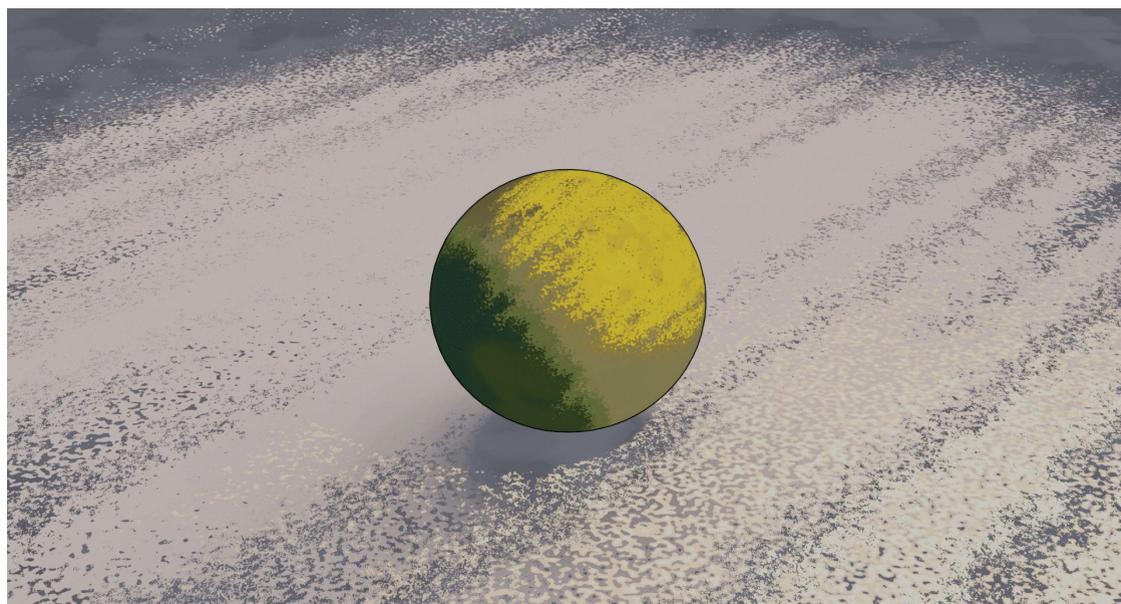
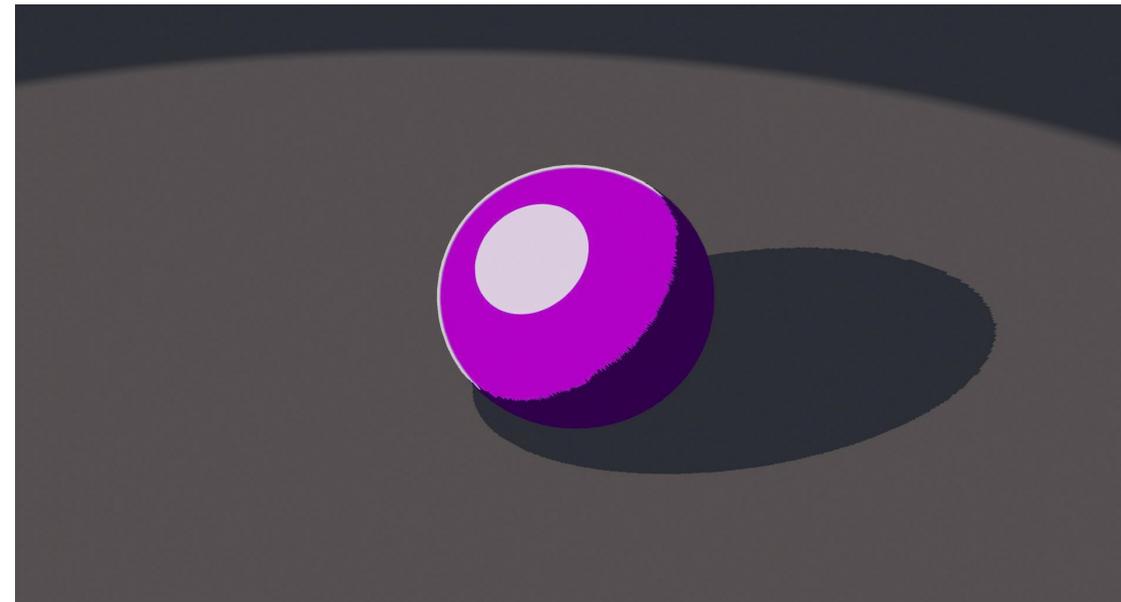
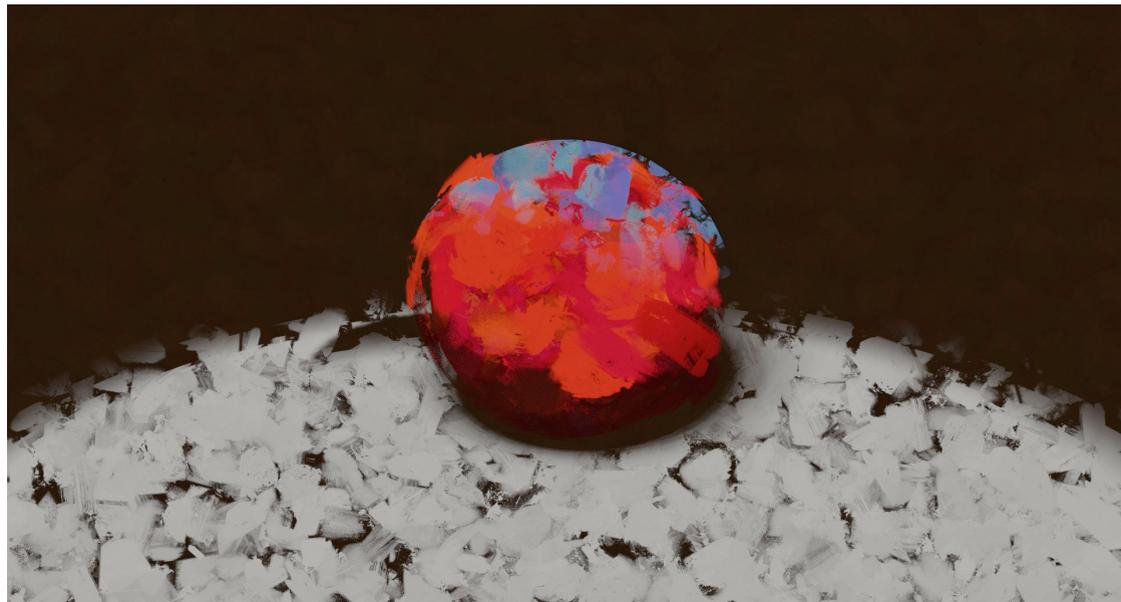
# 2D x 3D - Qual a visão?

---



# 2D x 3D - Qual a visão?

---

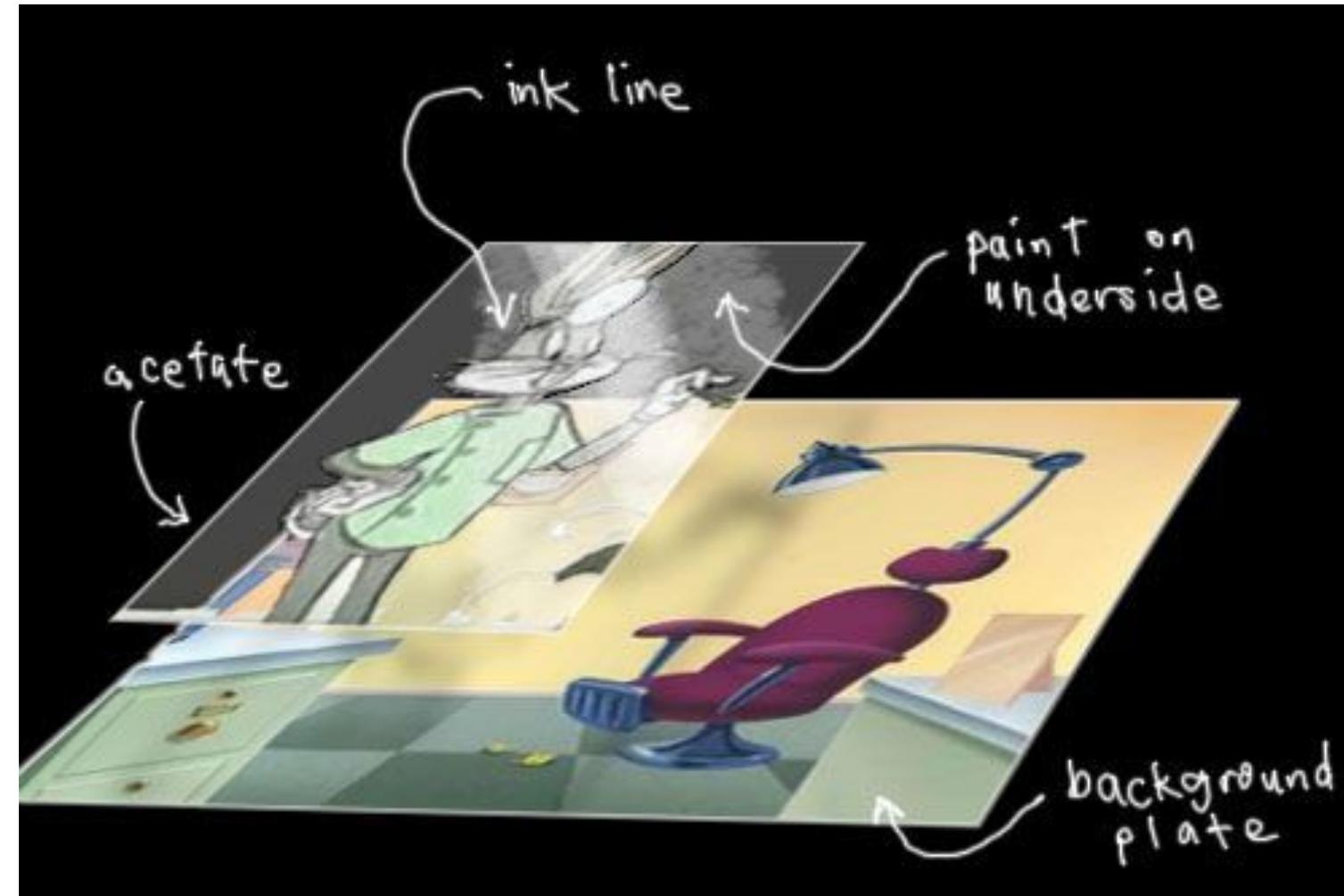
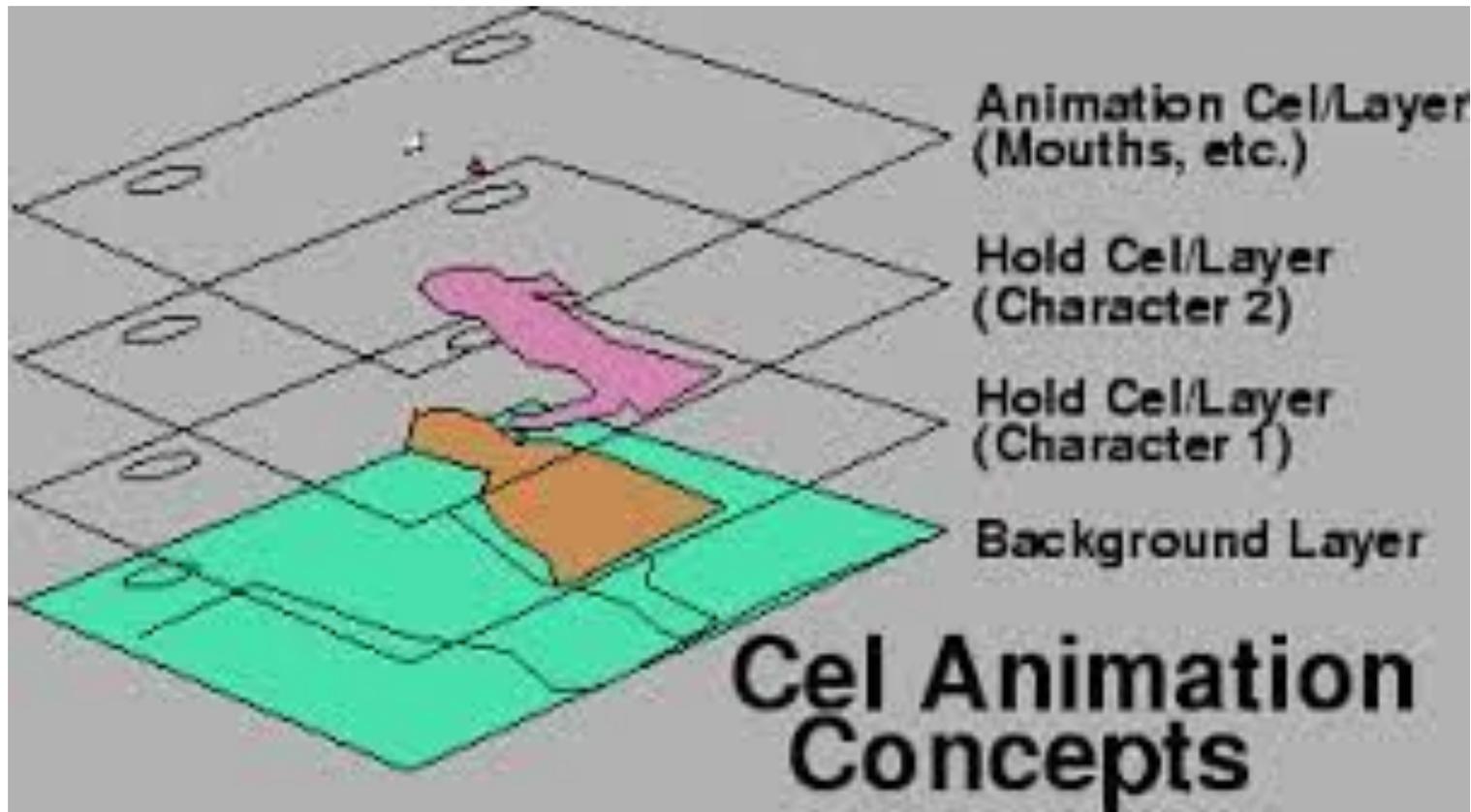


# Tipos de animação - 2D Tradicional

---



# Tipos de animação - 2D Tradicional



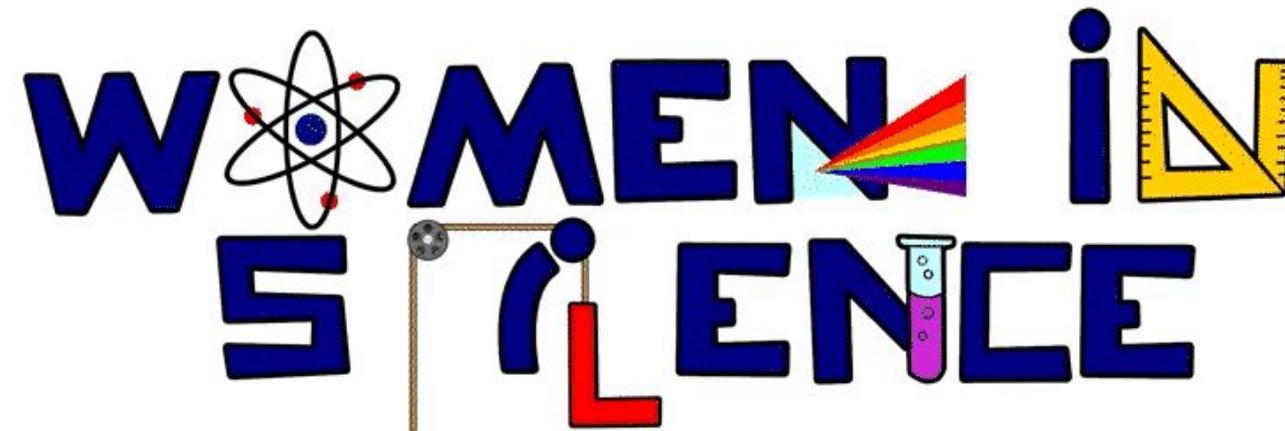
# Tipos de animação - 2D Vetorial

---



# Tipos de animação - Animação Gráfica

---



# Tipos de animação - 3D

---



# Tipos de animação - Stop Motion

---



# Expandindo - 2D Tradicional/Digital

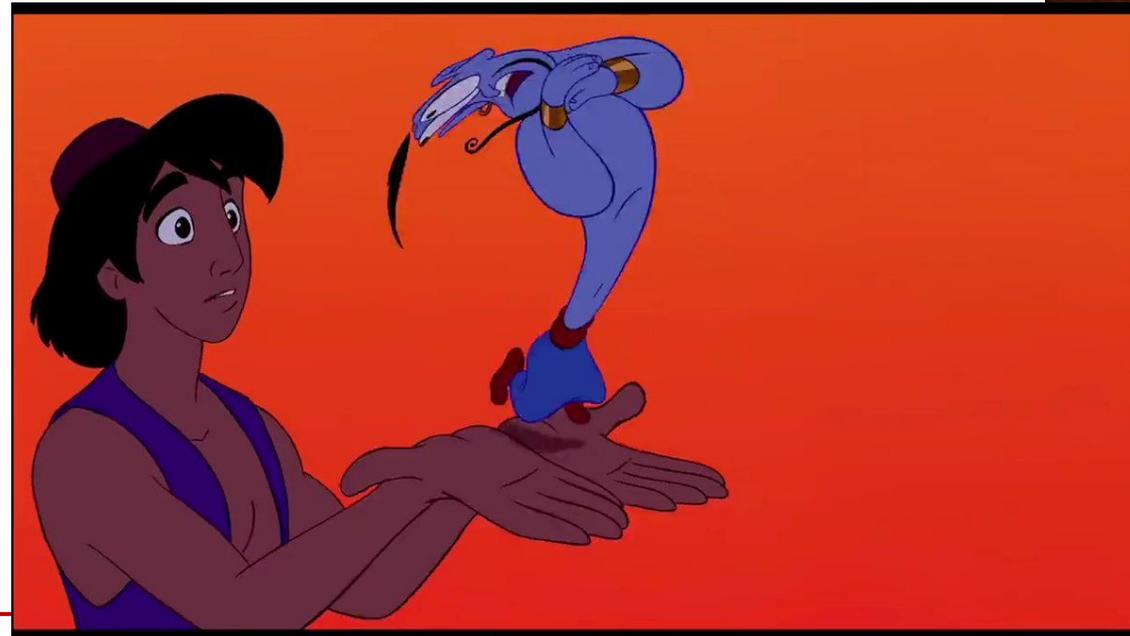


# 2D Trad - Cada frame é uma pintura (literalmente)



# 2D Trad - Cada frame é uma pintura?

---

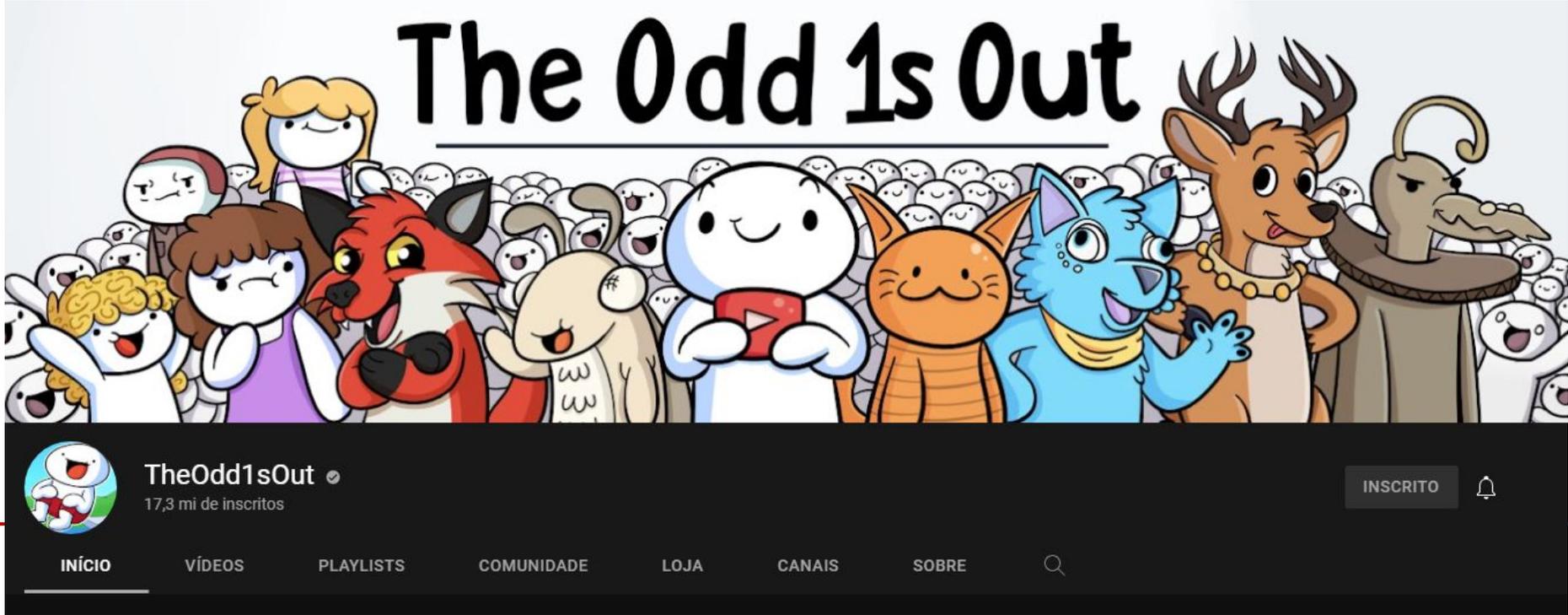
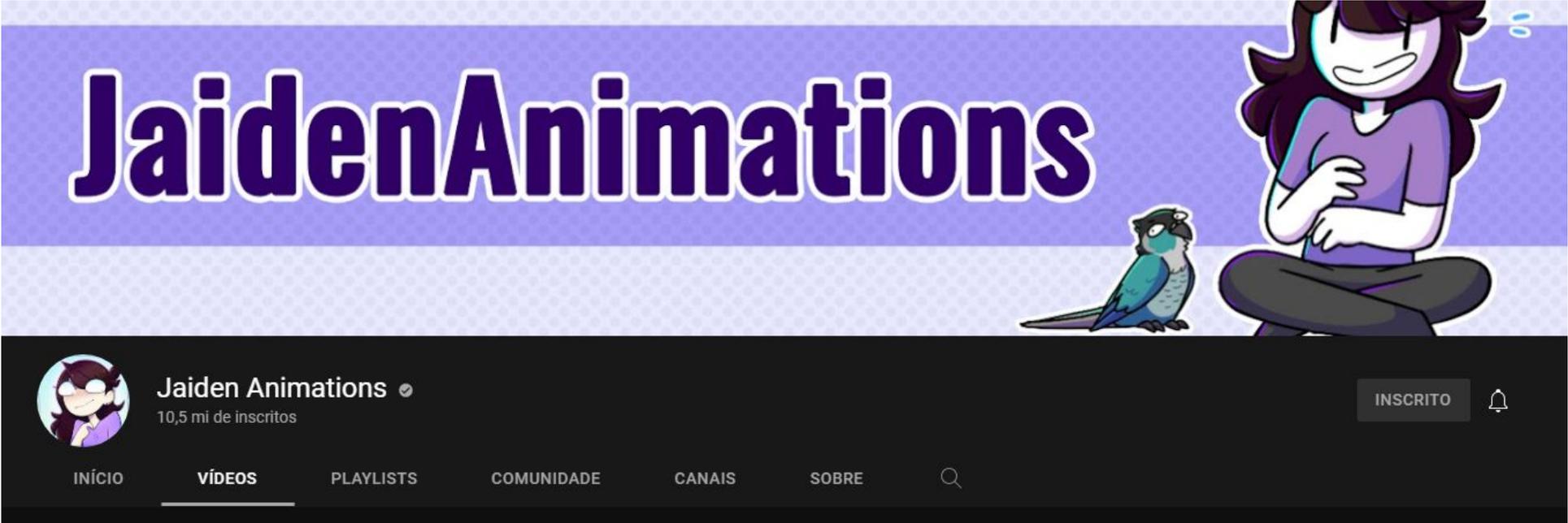


## 2D Trad - Dinâmicas ricas

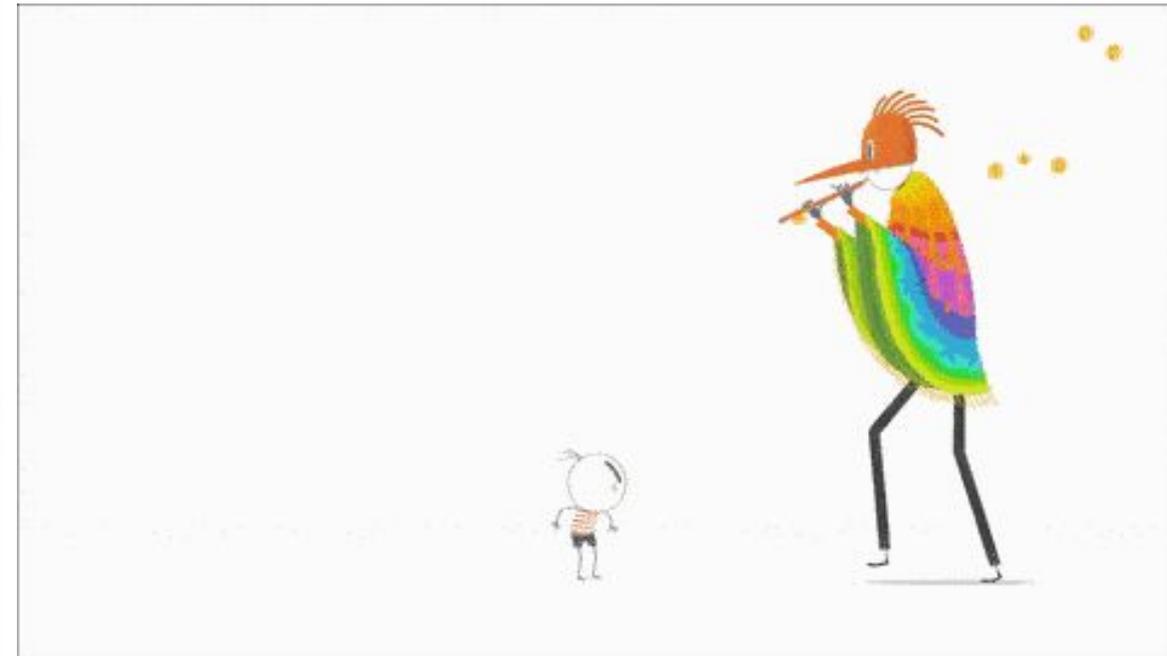
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# 2D Trad - Afora



# 2D Trad

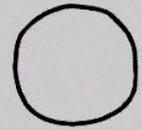


# Animando 2D Trad - Bola - Keyframes Extremos

---

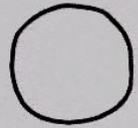
# Animando 2D Trad - Bola - Keyframes Secundários

---



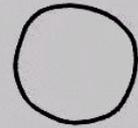
# Animando 2D Trad - Bola - Breakdowns

---

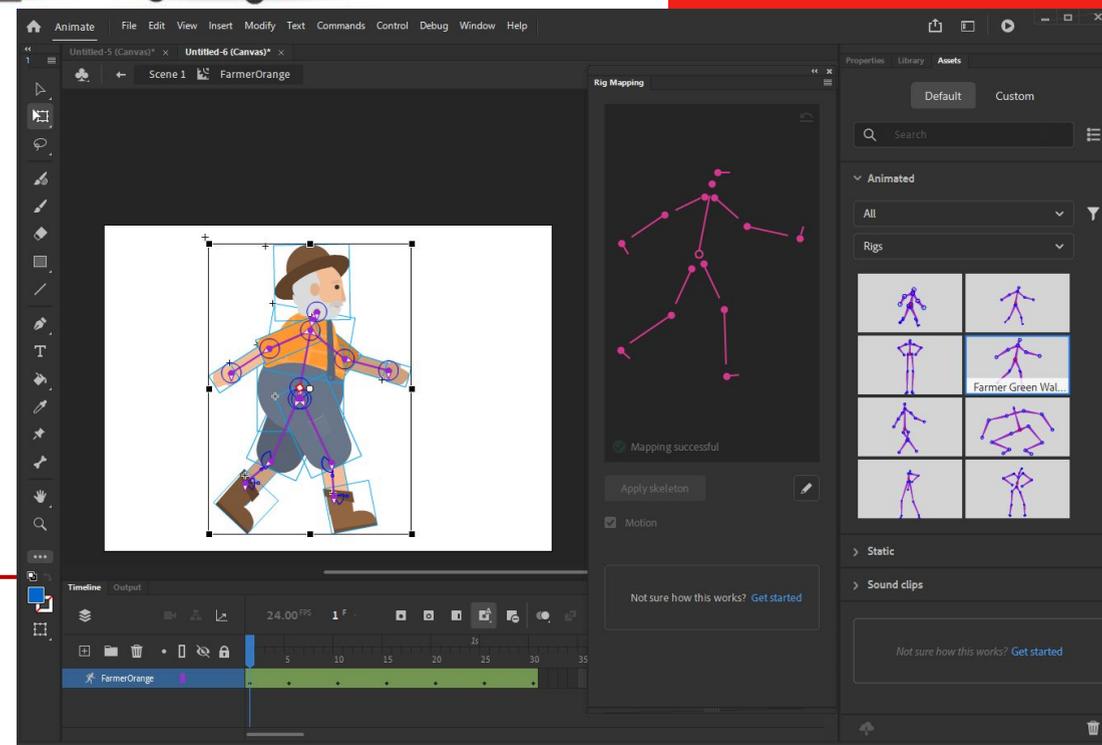
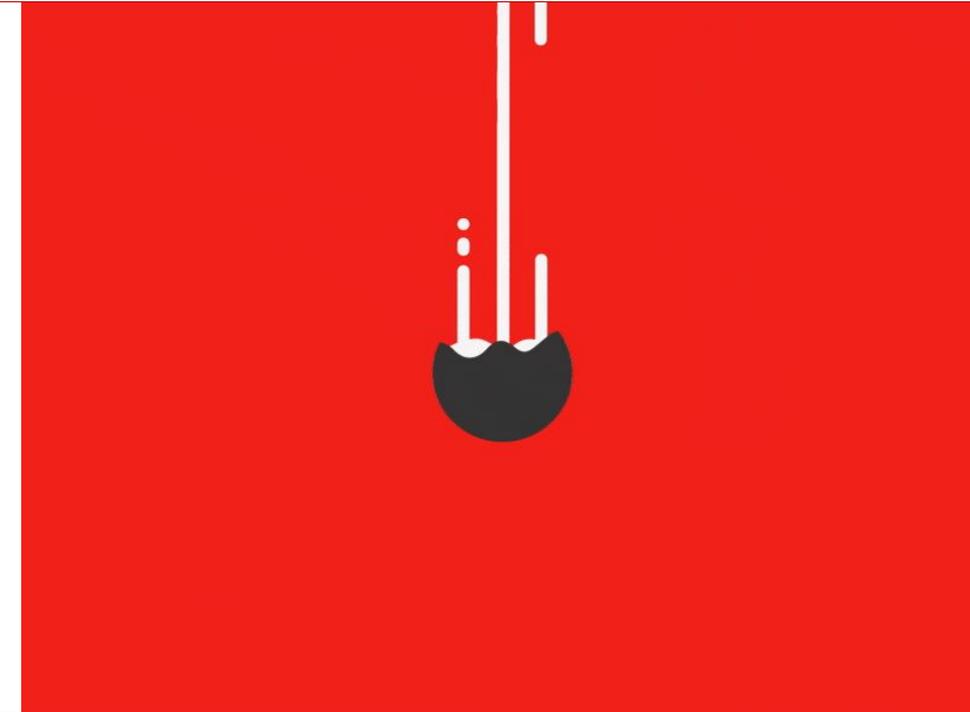


# Animando 2D Trad - Bola - Inbetweens

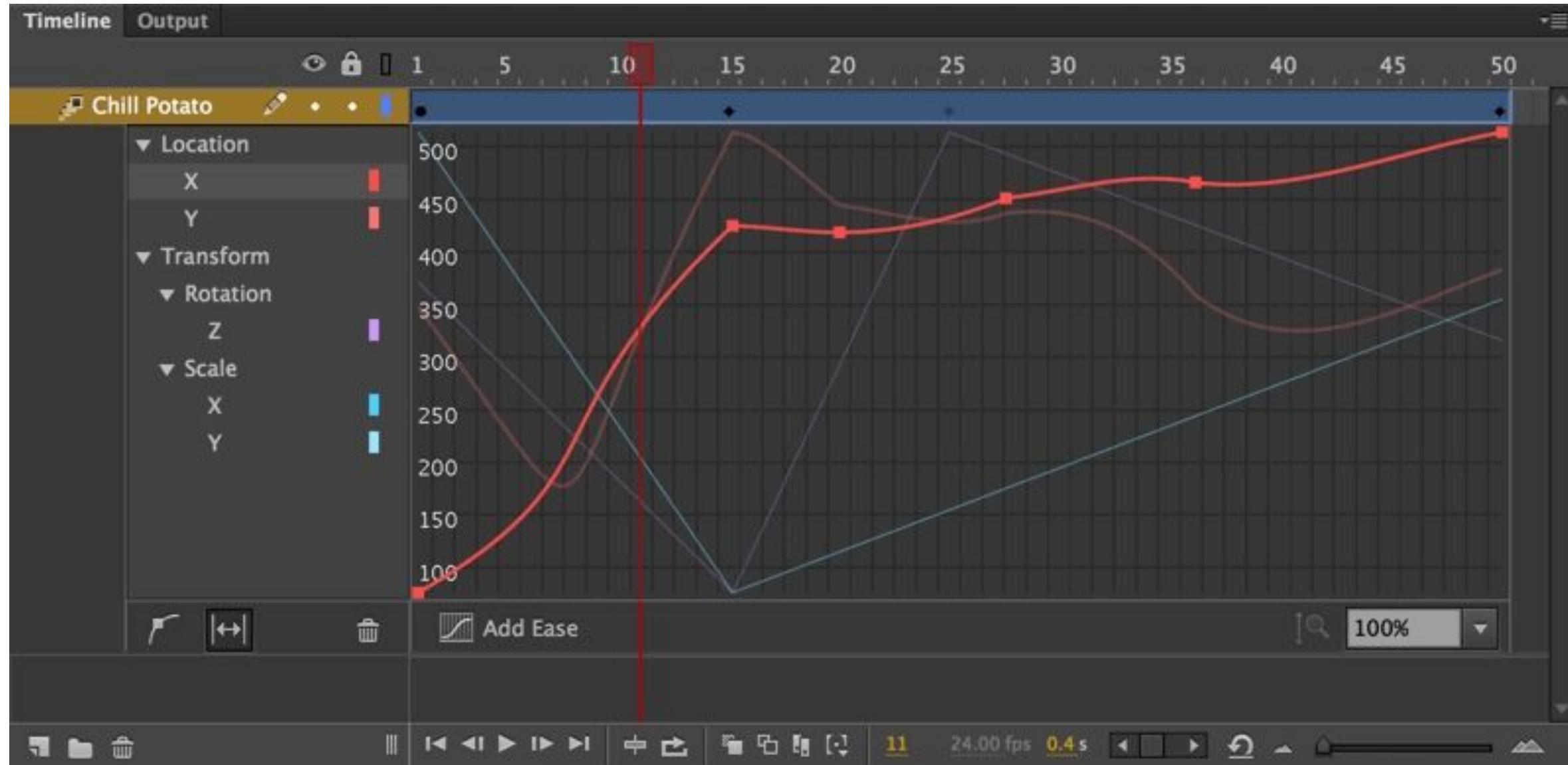
---



# Expandindo - 2D Vetorial e Gráfico

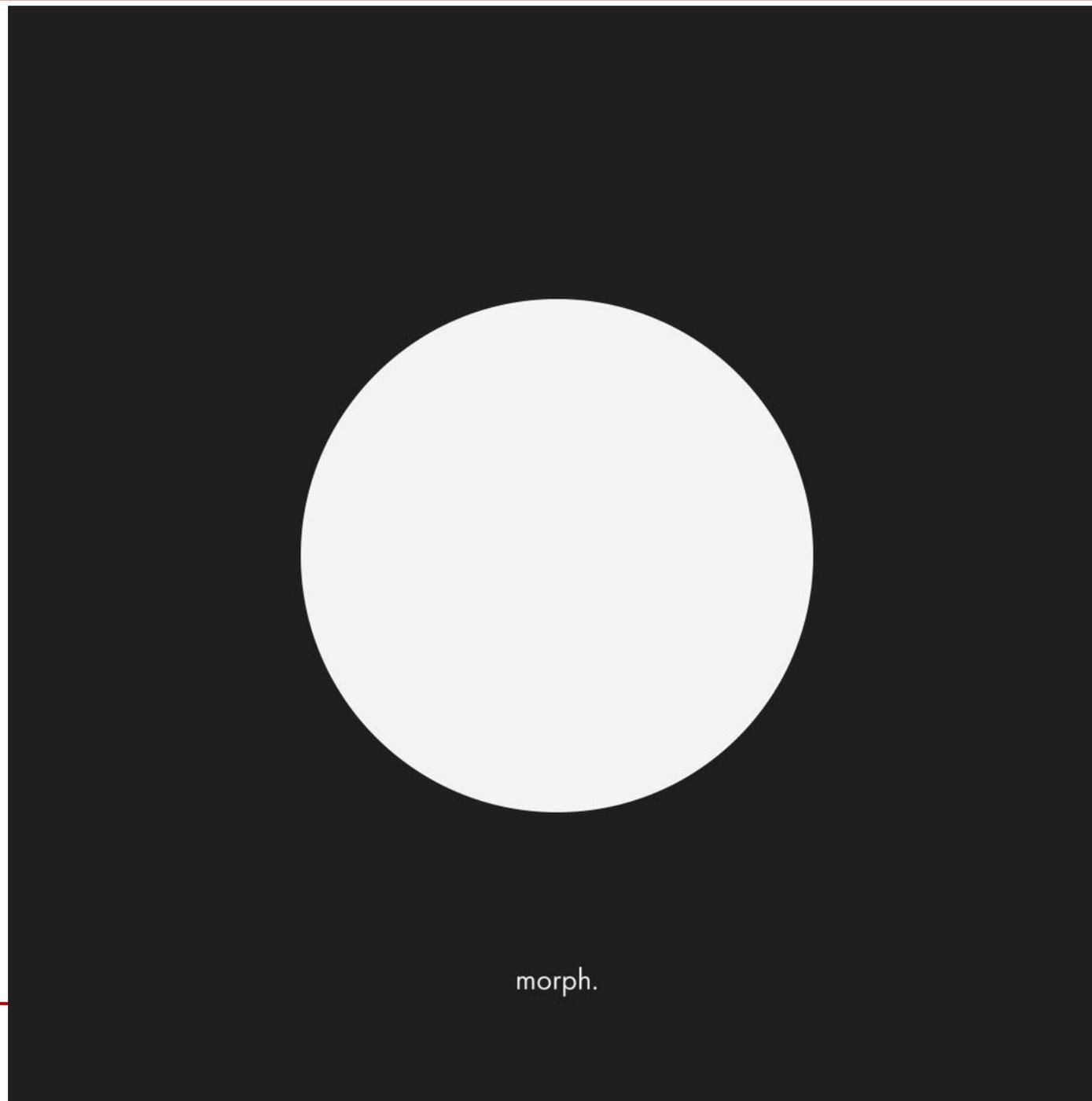


# 2D Vector - Movimento não destrutivo



# 2D Vector - Versatilidade gráfica

---



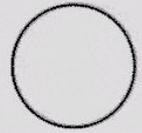
# 2D Vector - Não descarta o tradicional

---

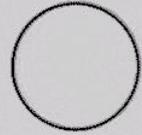


# Animando 2D Vector - Bola - Extremos

---

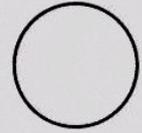


# Animando 2D Vector - Bola - Arcos



# Animando 2D Vector - Bola - Timing

---

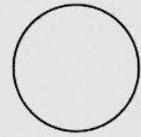


# Animando 2D Vector - Bola - Elasticidade

---

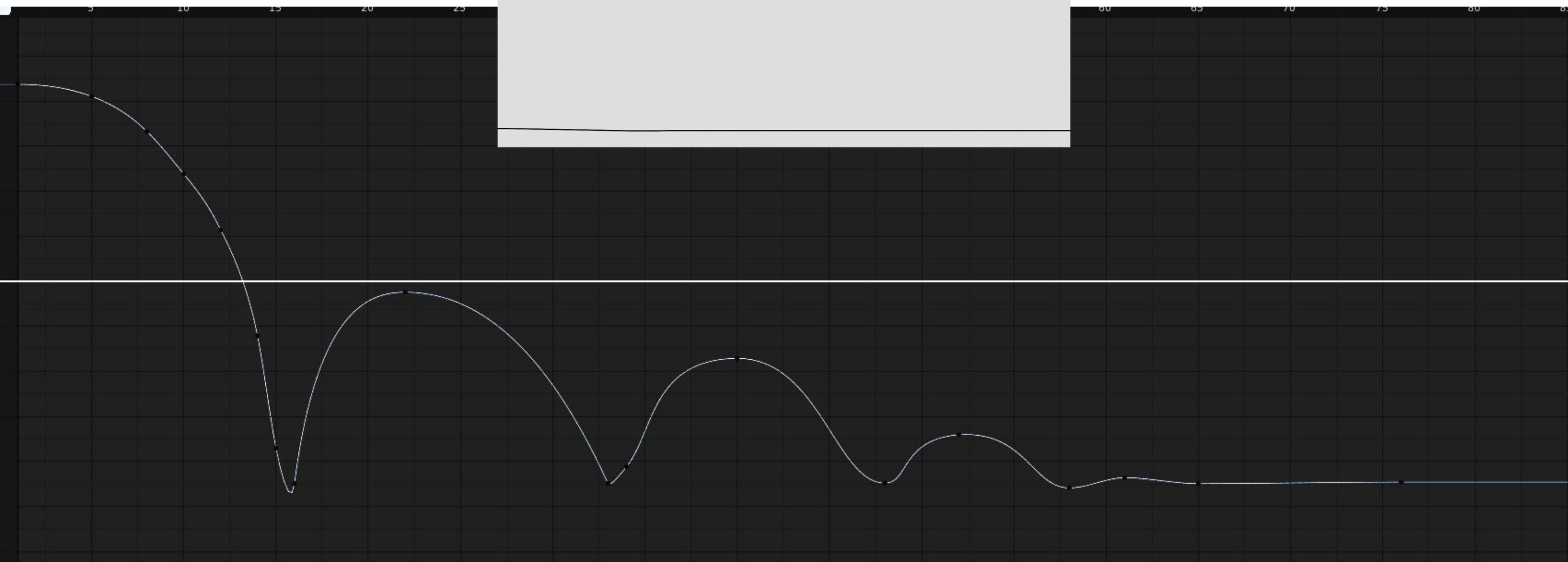


# Animando 2D Vector - Bola - Trocando Frames



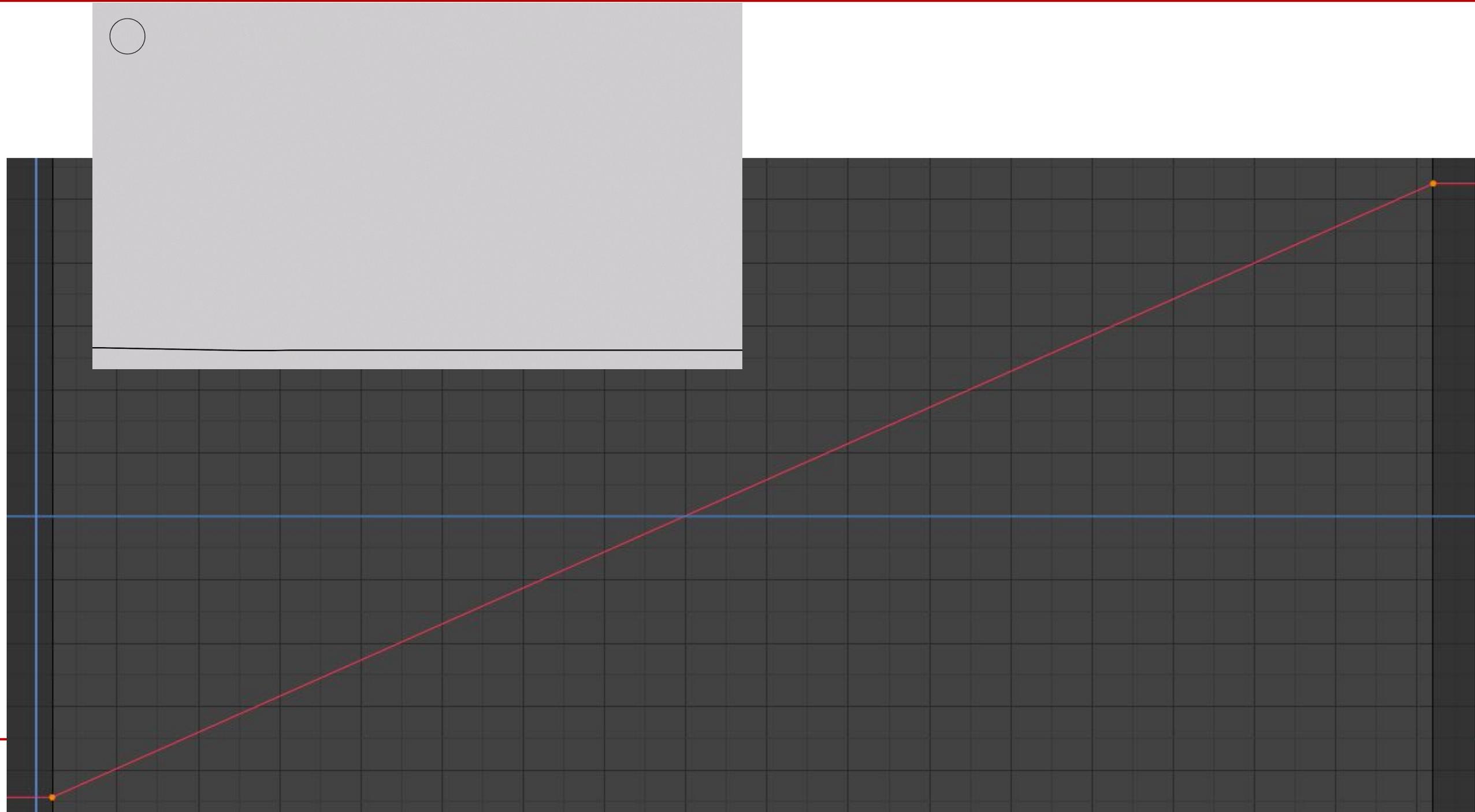
# Animando 2D Vector - Bola - Elasticidade

---

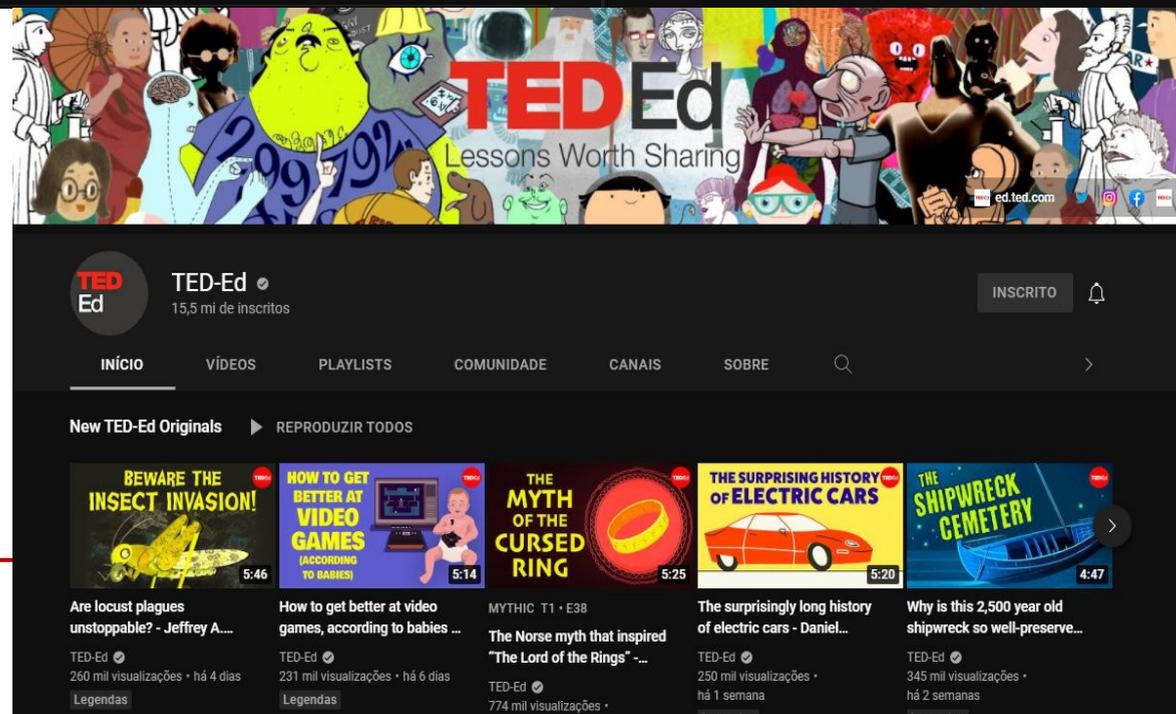
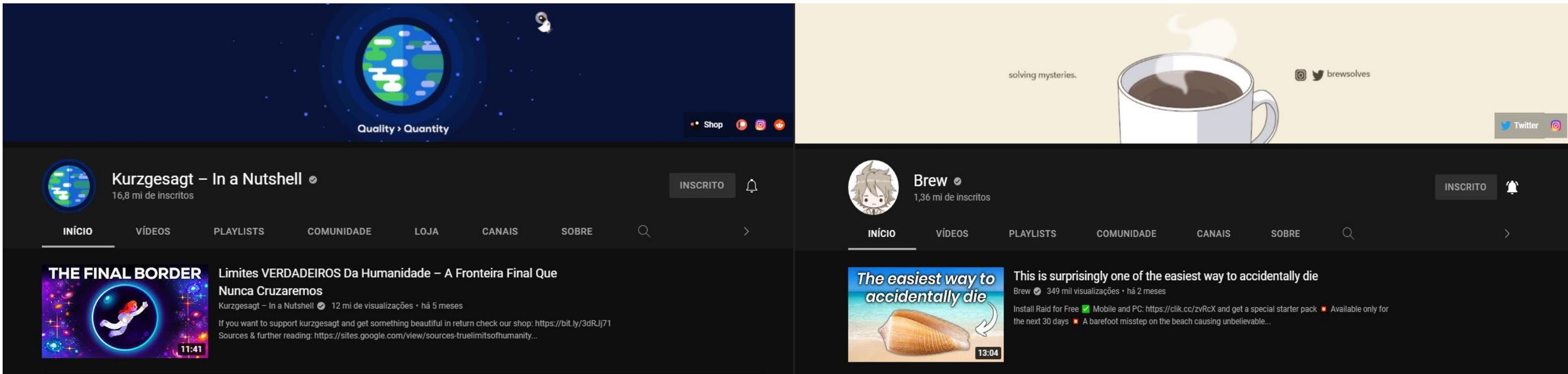


# Animando 2D Vector - Bola - Elasticidade

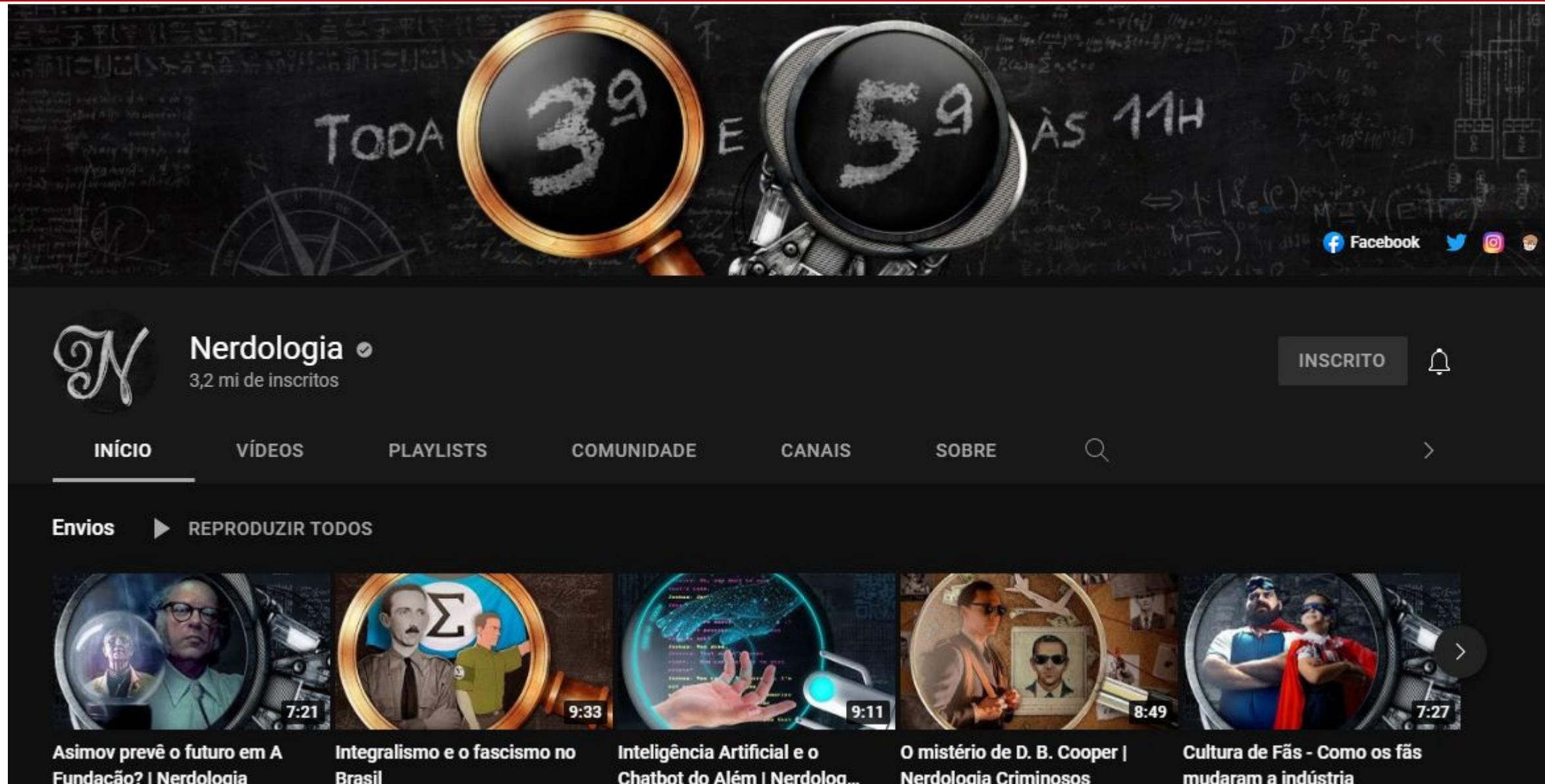
---



# Animando 2D Vector - Afora



# Animando 2D Vector - Afora



The image shows a YouTube channel page for 'Nerdologia'. The header features a banner with two magnifying glasses over a chalkboard background. The left magnifying glass shows the number '39' and the right one shows '59', with the text 'TODA E ÀS 11H' around them. Social media icons for Facebook, Twitter, Instagram, and YouTube are in the top right.

**Nerdologia** ✓  
3,2 mi de inscritos

INSCRITO 🔔

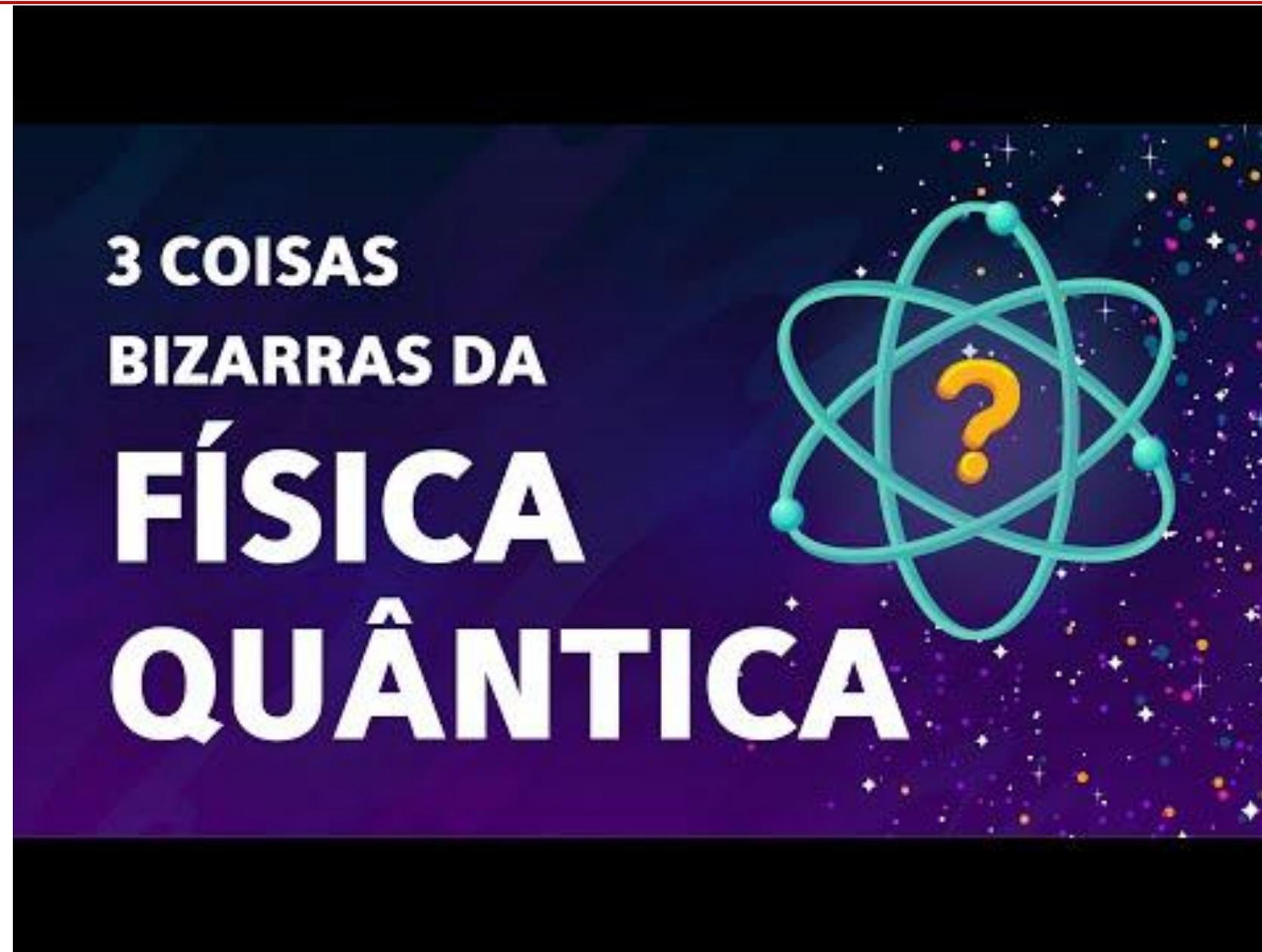
INÍCIO | VÍDEOS | PLAYLISTS | COMUNIDADE | CANAIS | SOBRE 🔍

Envios ▶ REPRODUZIR TODOS

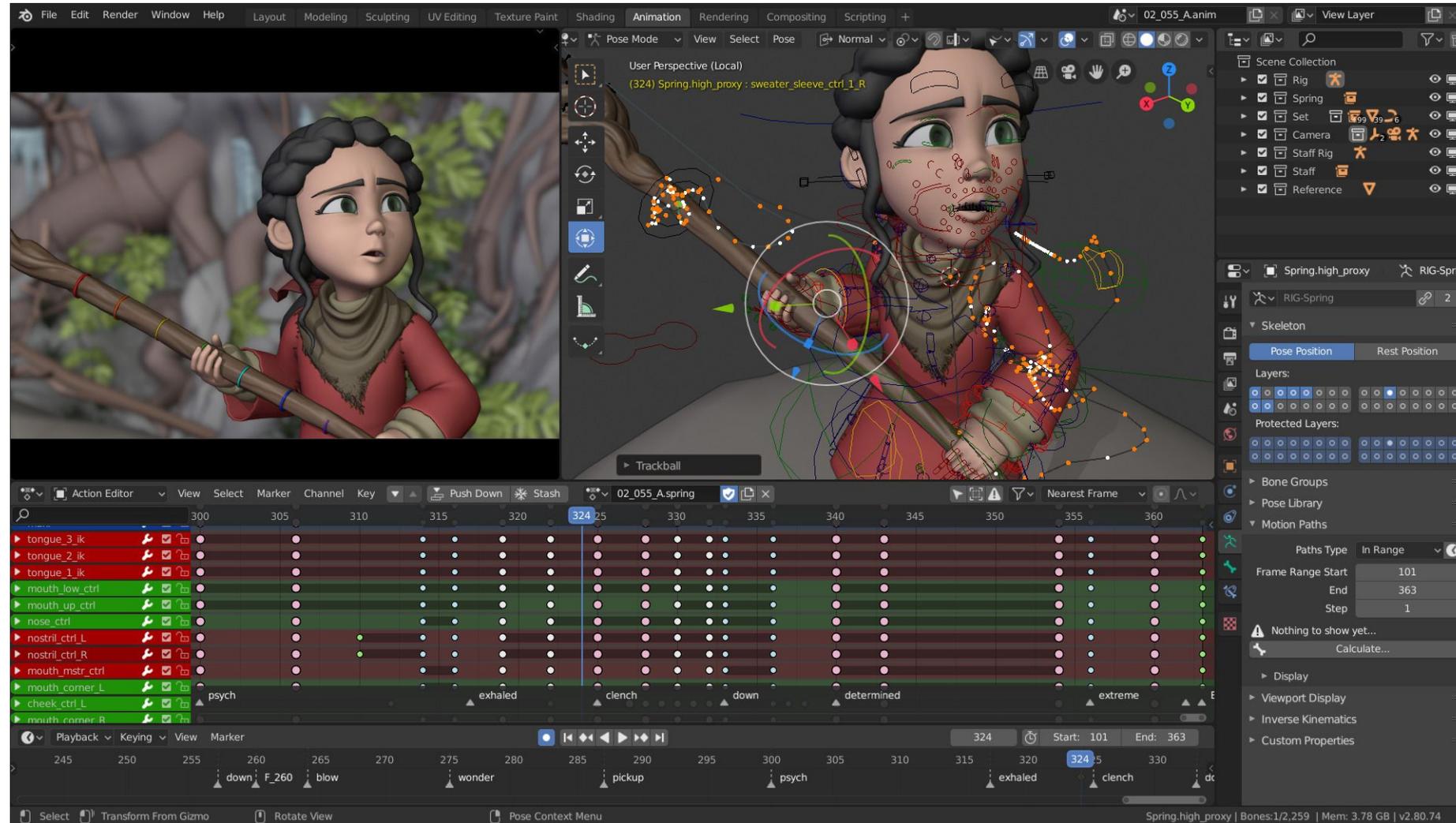
- Asimov prevê o futuro em A Fundação? | Nerdologia** 7:21
- Integralismo e o fascismo no Brasil** 9:33
- Inteligência Artificial e o Chatbot do Além | Nerdolog...** 9:11
- O mistério de D. B. Cooper | Nerdologia Criminosos** 8:49
- Cultura de Fãs - Como os fãs mudaram a indústria** 7:27

# Animando 2D Vector - Adentro?

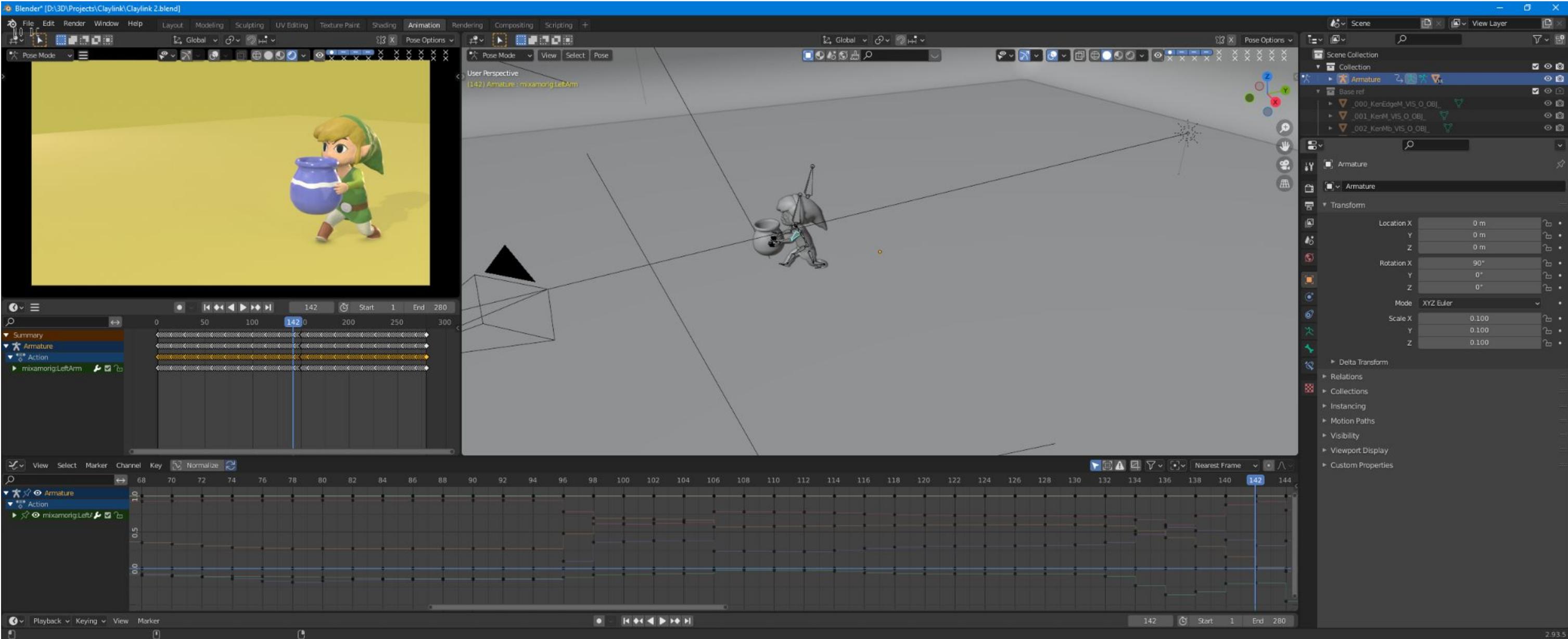
---



# Expandindo - 3D

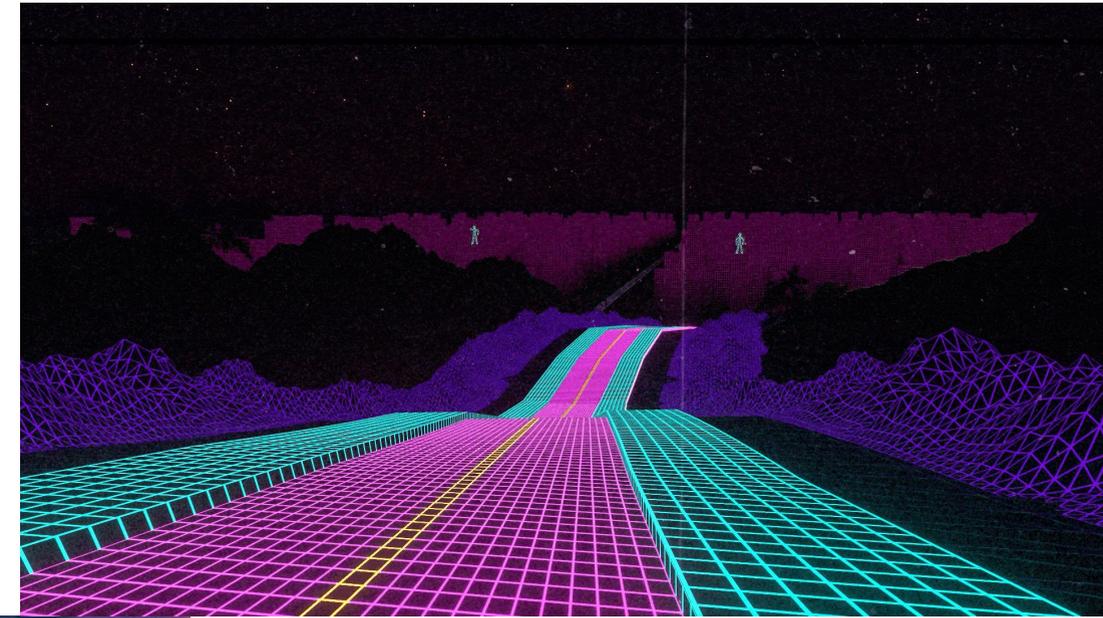
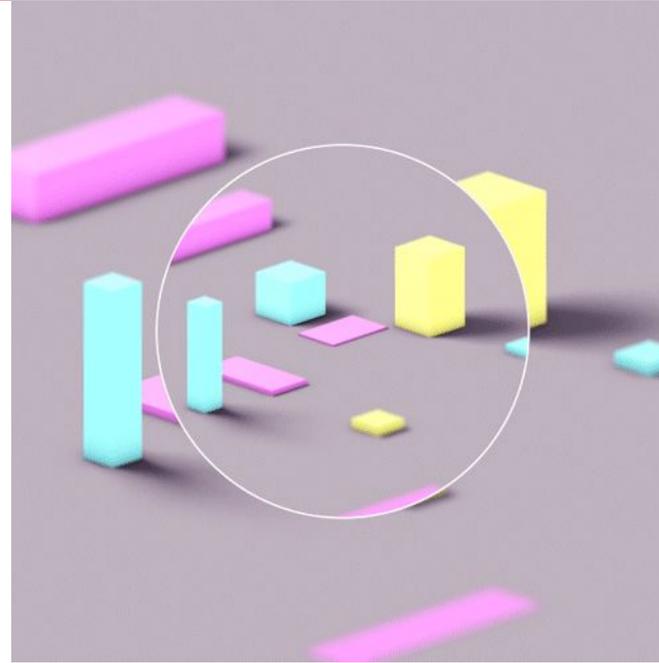


# 3D - Controle total da cena



# 3D - Muitos estilos

---



# Animando 3D - Bola - Extremos

---



# Animando 3D - Bola - Arcos

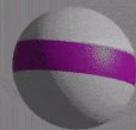
---



# Animando 3D - Bola - Rotação e timing

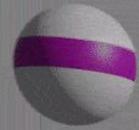


# Animando 3D - Bola - Elasticidade



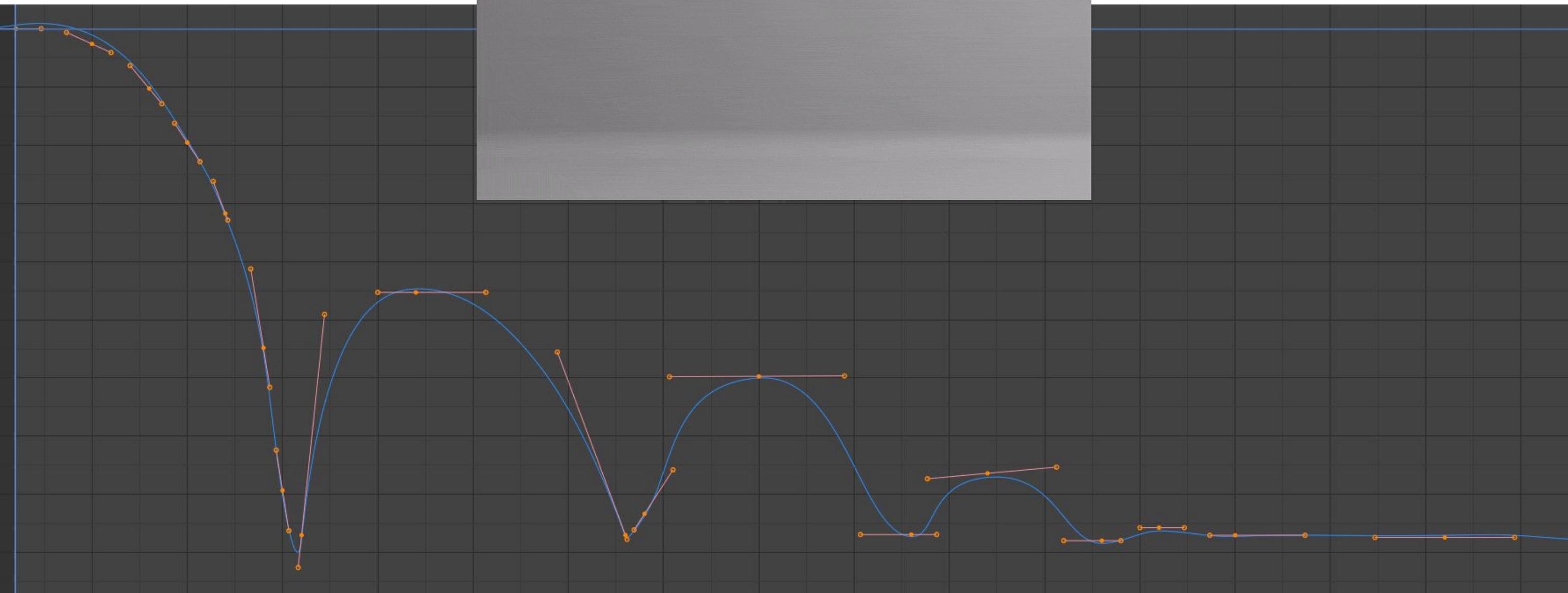
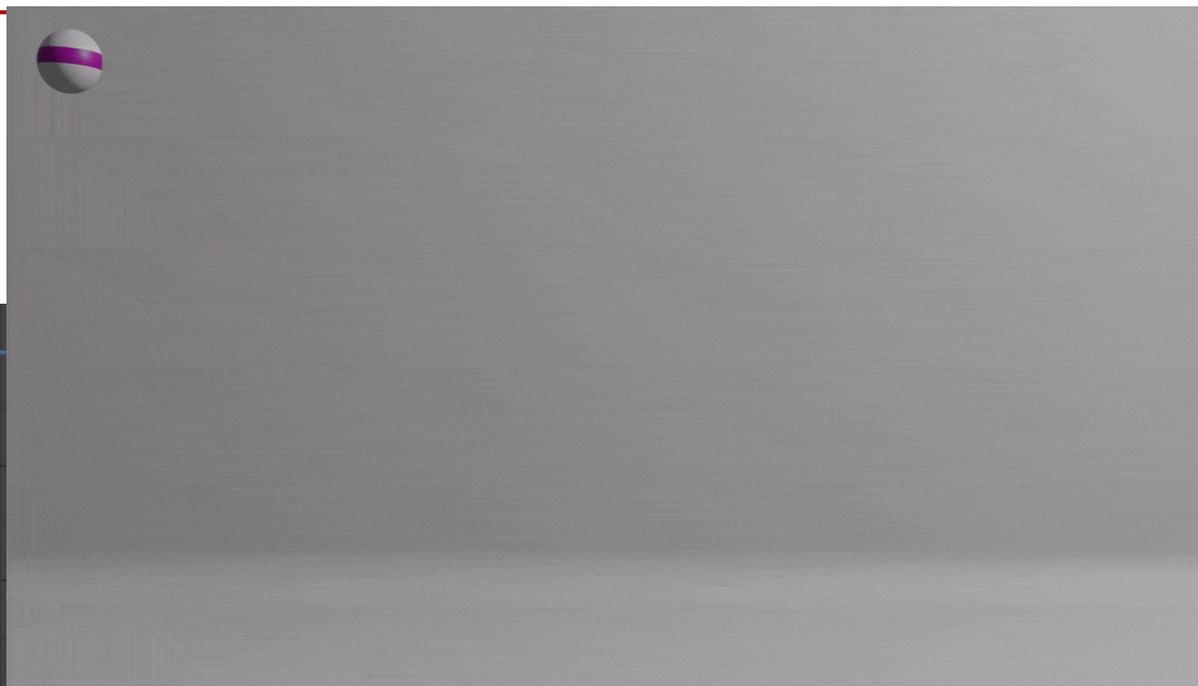
# Animando 3D - Bola - Motion Blur?

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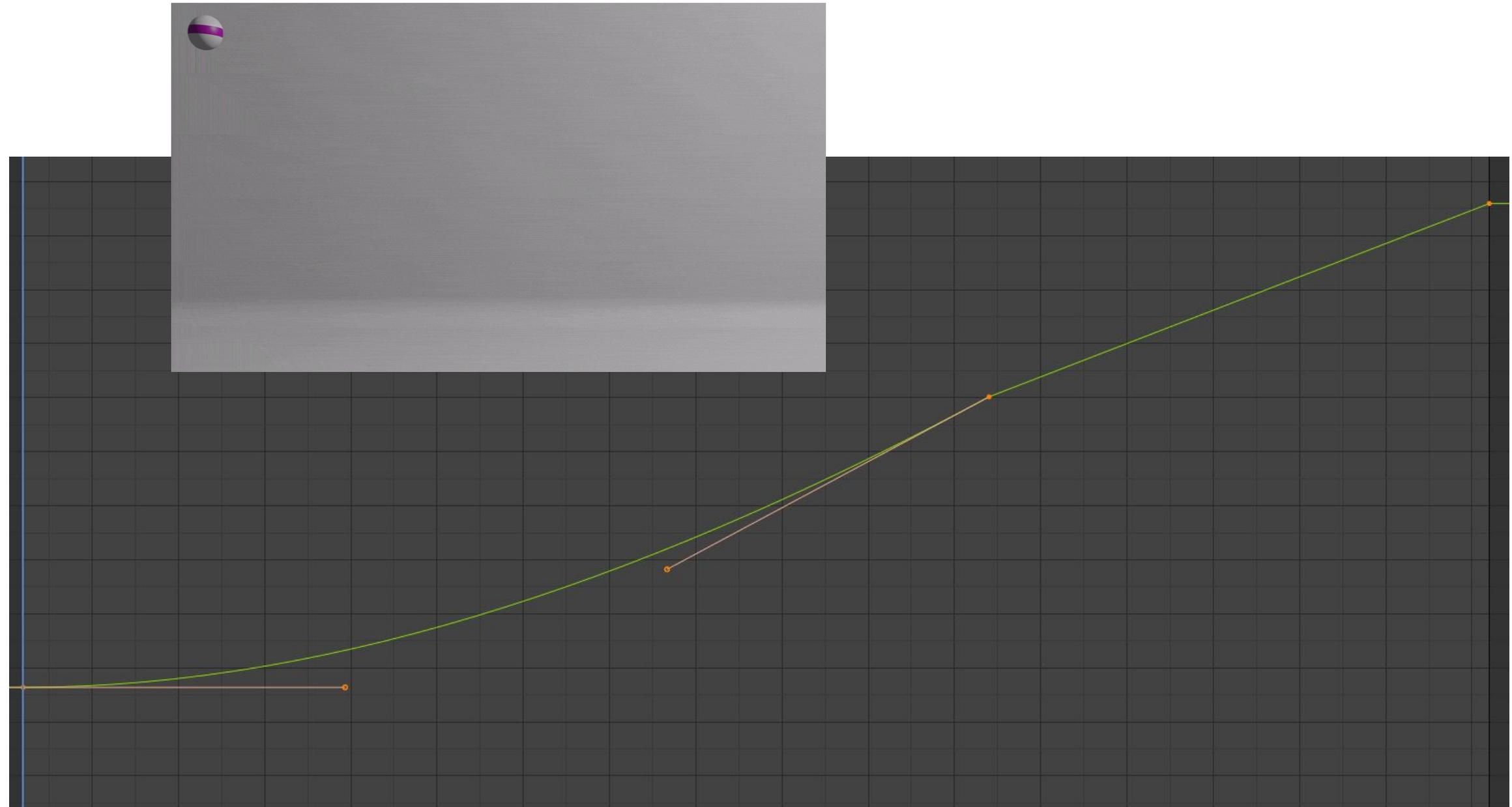
# Animando 3D - Bola - Eixo Z

---



# Animando 3D - Bola - Eixo Z

---



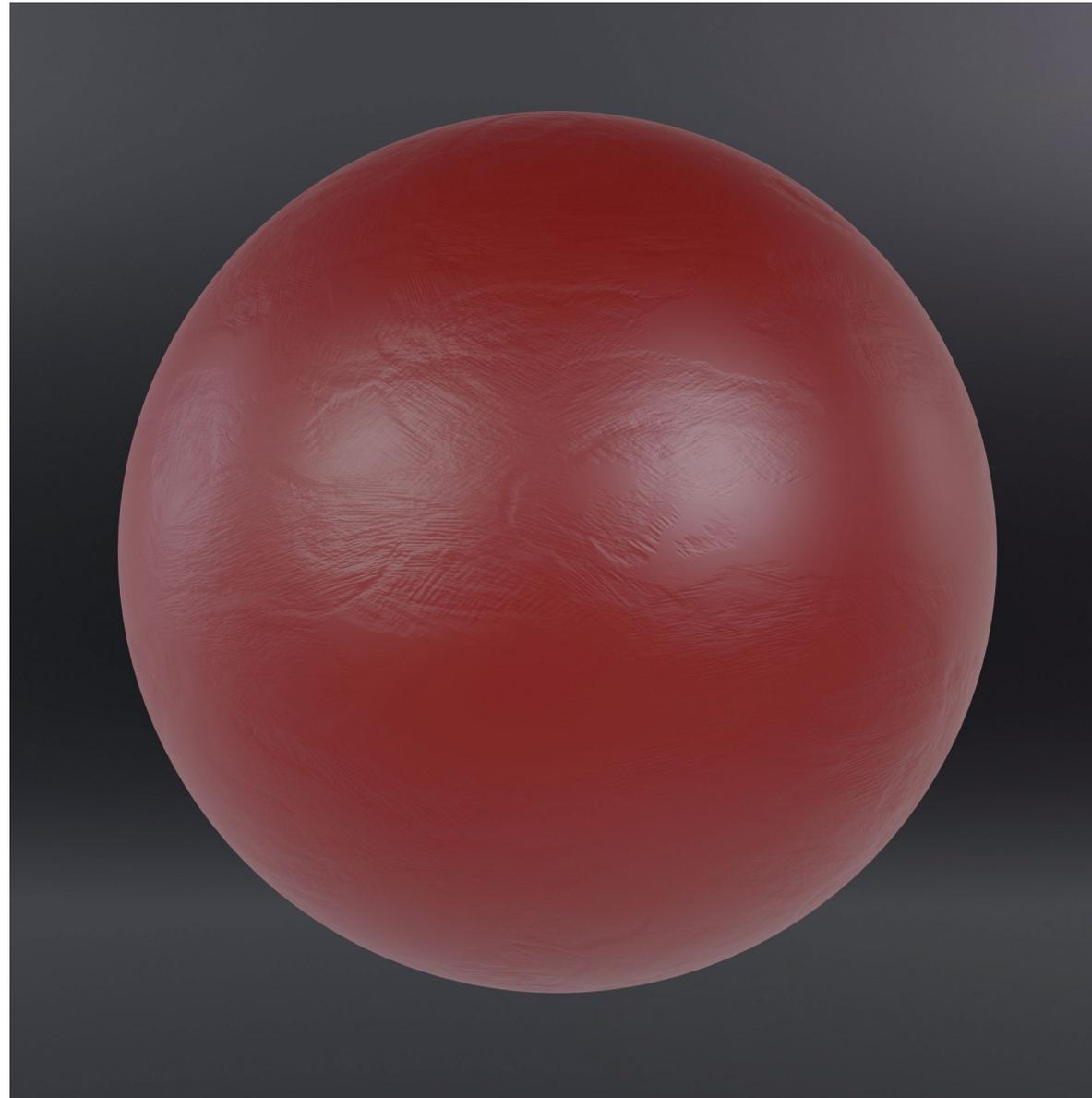
# Animando 3D - Bola

---



# Extra - Stop-Motion de mentirinha

---



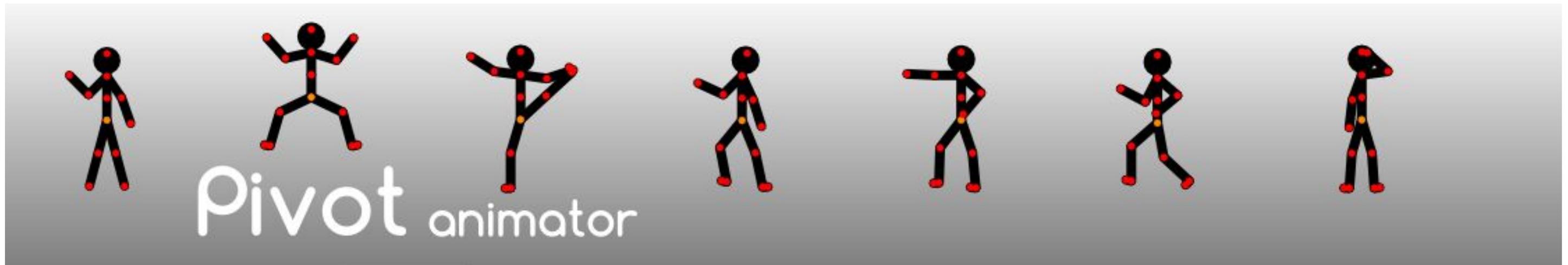
# Onde?

---



# Onde?

---



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